

In This Issue—*The Risk in Installment Sales to Minors*

MOTOR AGE

Vol. LI
Number 11

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CHICAGO, MARCH 17, 1927

Thirty-five Cents a Copy
Three Dollars a Year

**The new low-hung, safety
type of motor car will re-
place the old fashioned up-
in-the-air automobile just
as the safety type of bicycle
has replaced the high old
Woolworth tower type.**

Edward S. Jordan

President
Jordan Motor Car Company, Inc.
Cleveland

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He Sold \$250,000 Worth of Hupmobiles Last Year

Previously successful as a Hupmobile dealer in Detroit, H. W. Swanson migrated to California early in 1923 and obtained a franchise for Hupmobile in Hollywood.

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"As long as past policy of fairness to dealers is maintained, Hupmobile will always have as desirable a contract as can be offered by any factory."

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Hollywood, Cal.

From California to Maine, Hupmobile dealers' sales show a healthy record of growth, fostered and sustained by the high quality of Hupmobile products and the fair policies under which they are marketed.

It will pay you to investigate the Hupmobile opportunity in your own locality. Contract details will be gladly sent on request.



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DETROIT, MICHIGAN

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An Engineering Prediction Come True

What Moon Engineers Predicted

Cars built to withstand the continuous high speeds, the result of three billions spent on new hard, fast highways.

Lightning acceleration, perfect braking control.

New-type steering gear whereby any woman can wheel in and away from the curb with ease.

Big-car roominess, compactly designed.

Individual body design to meet improved personal tastes in color, ease, grace of line.

Better quality, within and without, at lower prices.

Now read how Moon met these predictions well ahead of their day, in sixes and eights designed with a vision of future needs.

What Moon Engineers Did

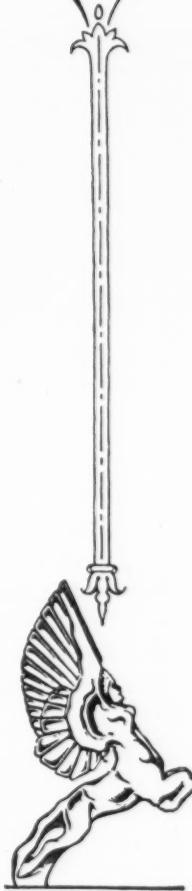
They designed high-speed, new type "6" and "8" motors that drive at continuous speeds of 60 and 70 miles per hour.

—Low safety chassis perfectly balanced with long slenderizing lines, equipped with perfected four-wheel hydraulic brakes for quick, sure, non-skid stop.

—Patented steering gear of giant leverage with the effort of a child.

—Bodies that hold five passengers with perfect comfort, with safety vision and many other improvements.

—An individual style, still unmatched for distinction, that has been the pattern of many distinguished 1927 cars of more expensive make.



MOON
6-60 Models
\$995--\$1295
f.o.b. St. Louis

Compare the complete Moon line point for point in the features that sell modern cars. Write for franchise opportunities. See how far ahead of its day and class Moon is in the essential values of a smart, modern automobile.

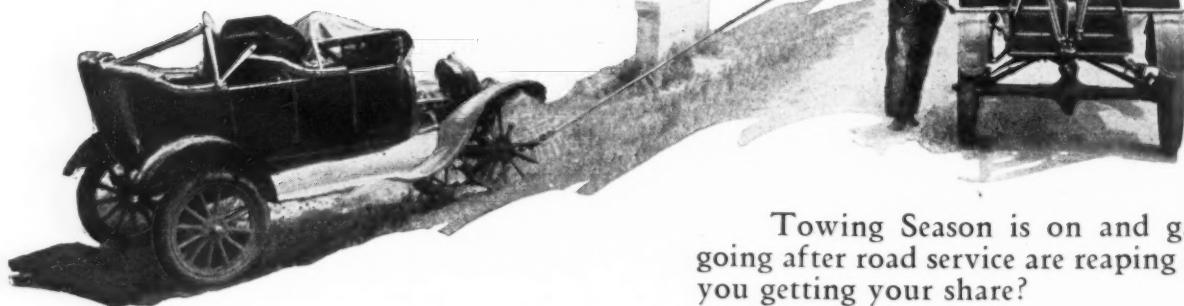
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MOON



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Holmes "V" Tow Bars

For towing wrecked cars suspended, the Improved Holmes "V" Bar is the latest development in towing equipment. It absolutely holds towed car in perfect alignment, and gives service car complete control over towed car. Furnished in two lengths, 36-inches to 48-inches; and 48-inches to 60-inches.

Price \$20.00 to \$22.00



Holmes Steering Gear Clamp

Holds steering gear rigid to front axle while towing car with rear end suspended from service car. Consists of duplicate clamping members with V shaped teeth arranged to grip parallel rod and a circular portion for clamping the axle, making it fit all car and truck axles. Saves use of one man.

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Go get them with a Holmes Wrecker No. 110. It mounts quickly on any touring car or light truck chassis and through effective advertising it creates big profits in tow fees and repair jobs.

The Holmes No. 110 is the most powerful, practical and efficient crane type wrecker ever developed. Its tremendous leverage and four ton capacity permit it to handle the heaviest cars speedily and efficiently. The patented swivel head permits a pull from any angle and eliminates blocking traffic. It is operated entirely from the ground and by one man. The cost is small and the profits big. Get yours now.

Price, \$95.00

Order from your Jobber or write for full information.

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CHATTANOOGA
TENNESSEE

MOTOR AGE

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VOL. II

NO. 11

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Peer1

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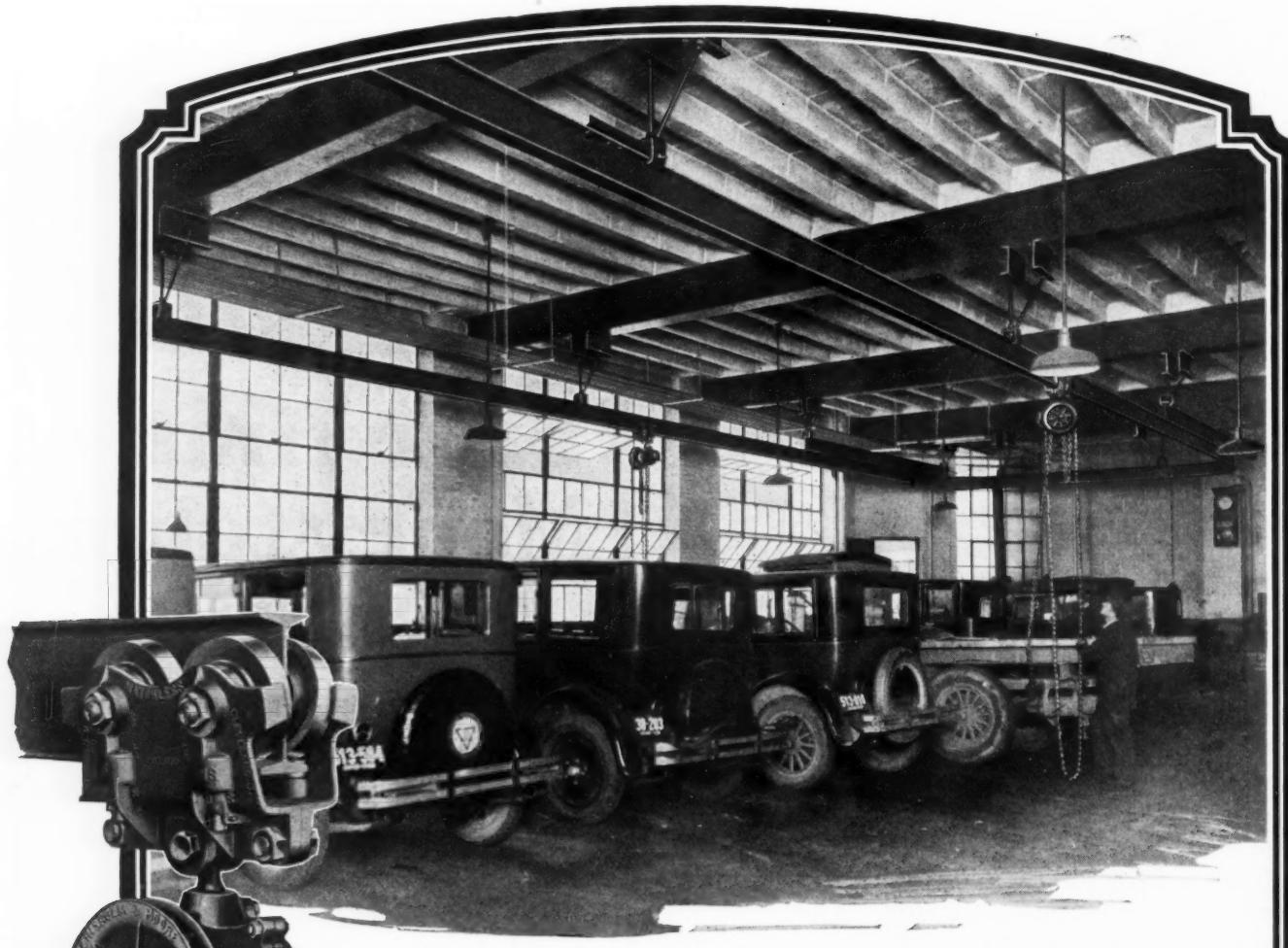
The adjustment is better and closer and the surface is smooth as glass. Keep a stock of Laminated Shims in your shop and save time, money and labor.

Sold by all jobbers. There is a shim for every make of car.

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A "C-M" Cost Cutting Idea for Service Stations and Garages

Two "Cyclone" Hoists connected to "Matchless" Trolleys operate on a continuous oval shaped Monorail Track in the service station illustrated in the view above.

Automobiles to be serviced or repaired are placed under the oval shaped track. If it is necessary to raise an entire car clear of the floor, one "Cyclone" Hoist is used on the front end and the other on the rear end. If only one end must be raised either one or both hoists are employed as needed.

The "C-M" Equipment in this shop speeds up service and repair work with a consequent lowering of labor costs. The ease and safety with which heavy cars are handled afford working conditions impossible to picture. And the space saving advantages are vital factors to consider. Regardless of the size of your service station or garage, a combination of "Cyclone" Hoists and "Matchless" Trolleys can be arranged to meet your conditions.

The exceptional features of construction of these master material handlers merit your serious consideration.

Ask the "C-M" branch or Distributor in your territory to give you complete information. Or write us here in Cleveland.

The Chisholm-Moore Mfg. Co., Cleveland, Ohio

Branches: New York—Chicago—Pittsburgh

Agencies in All Principal Territories for Prompt Service

CHISHOLM-MOORE
OVERHEAD  TRACK SYSTEMS

The LITTLE ARISTOCRAT

Hits the Trail for Texas

THAT the Erskine Six is winning its spurs on the open road in every kind of going is attested by such letters as the following from the Mexia Motor Car Company of Mexia, Texas:

"We left Detroit Monday afternoon, February 7th, and drove to Akron, Ohio, where we visited the Firestone factory, leaving there Tuesday evening and spending that night in Columbus, Ohio. We left Columbus Wednesday morning on our route through the states of Ohio, Kentucky, Tennessee, Arkansas, arriving here Sunday night, February 13th.

"This trip covered a distance of 1894 miles. In addition to the good highways, we experienced some real muddy roads, rough gravel roads, rainy weather, and some snow. We came through the flooded sections of Arkansas, where it was necessary to take a ferry for a distance of 20 miles on the White river.

"Our sole intention was to give the new car a real test and we did not hesitate to step on the gas. We drove for many miles at a rate of speed of 35 to 50 miles per hour. We did not have any trouble of any kind with the car, and it hardly seems possible that a small car like the Erskine will run at such high rate of speed with practically no vibration. Our highest rate of speed was 58 miles per hour.

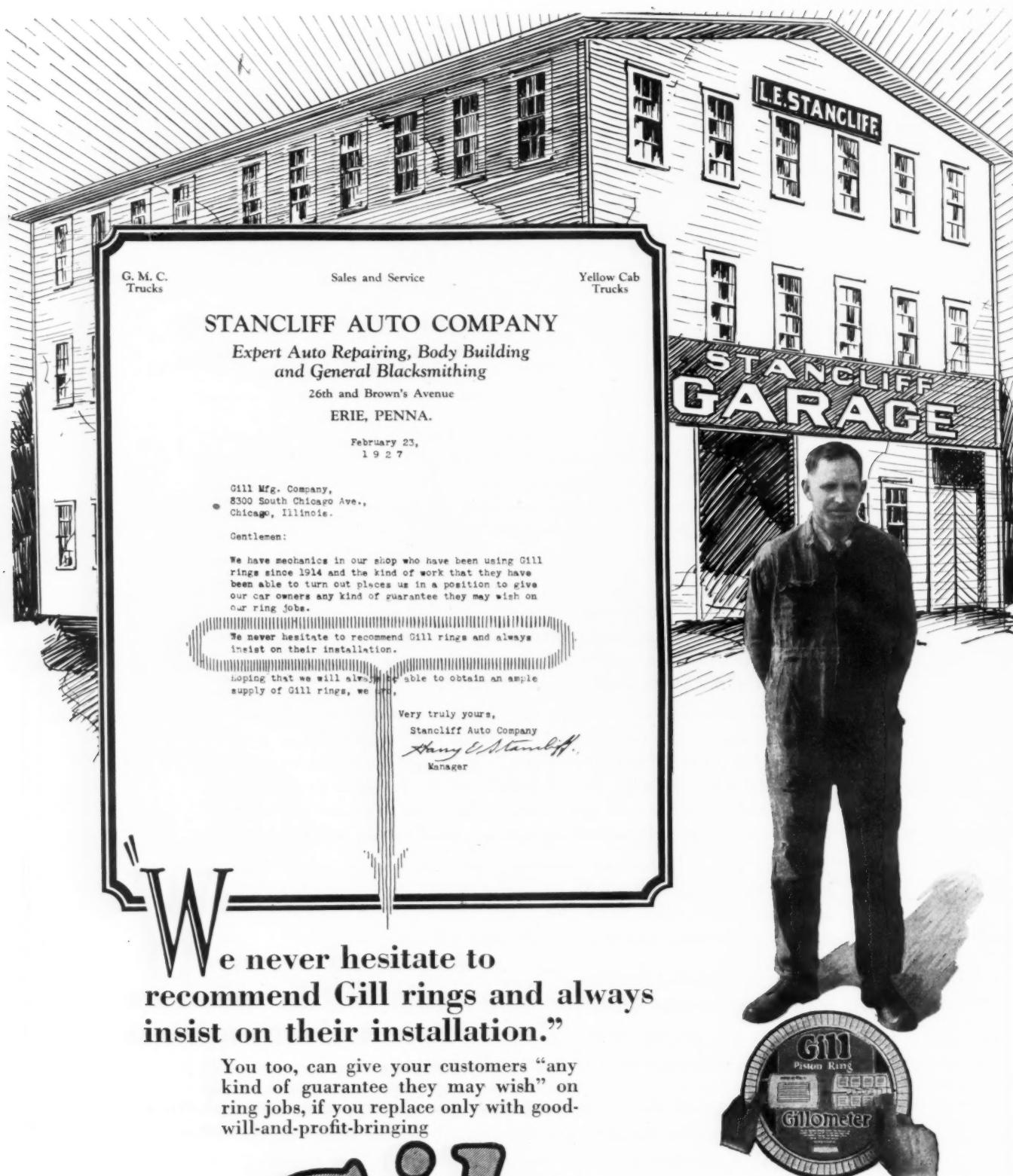
"The car is now in perfect running condition, and we are trying to keep it as a demonstrator to show the public the unequalled riding qualities and performance of this car, which cannot be fully appreciated by any one unless they ride and drive the car."

All over the world the Erskine Six is proving that it has winning stuff built into its powerful, sturdy chassis. What a car to sell! And what opportunities for profits when combined with the great Studebaker Custom line—a winner of universal admiration.

With the addition of the Erskine Six, Studebaker dealers now dominate three great price fields—the thousand dollar market, the fifteen hundred dollar market and the two thousand dollar market!

Wire for information on your territory. Address Dept. 51, The Studebaker Corporation of America, South Bend, Ind., U. S. A.

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SEVENTY-FIVE YEARS YOUNG

G. M. C.
Trucks

Sales and Service

Yellow Cab
Trucks**STANCLIFF AUTO COMPANY****Expert Auto Repairing, Body Building
and General Blacksmithing**

26th and Brown's Avenue

ERIE, PENNA.

February 23,
1927Gill Mfg. Company,
8300 South Chicago Ave.,
Chicago, Illinois.

Gentlemen:

We have mechanics in our shop who have been using Gill rings since 1914 and the kind of work that they have been able to turn out places us in a position to give our car owners any kind of guarantee they may wish on our ring jobs.

We never hesitate to recommend Gill rings and always insist on their installation.

hoping that we will always be able to obtain an ample supply of Gill rings, we are,

Very truly yours,
Stancliff Auto Company
Harry L. Stancliff,
Manager

We never hesitate to
recommend Gill rings and always
insist on their installation."

You too, can give your customers "any kind of guarantee they may wish" on ring jobs, if you replace only with good-will-and-profit-bringing

Gill

GILL
Manufacturing
Company

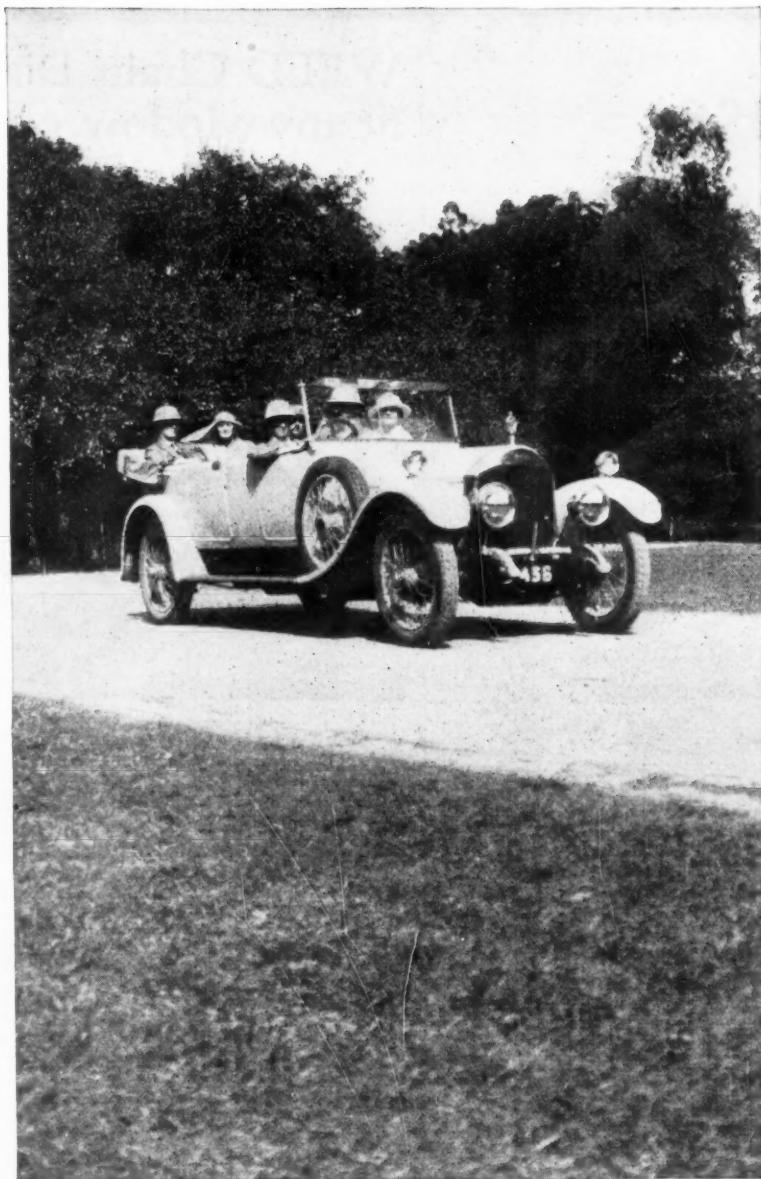
Products

Gill Interlocking Joint Rings
Servus Step-Cut Rings
Economy Oil Rings
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Pistons

**FREE GILLOMETER**

Gives the flat rate charge on six popular engine repair jobs covering 76 makes and models of cars. Tells piston ring size required. Wipes out estimating losses. Sent free—regardless of what rings you use. Write for yours today.

8300
SOUTH CHICAGO AVE.,
CHICAGO, ILLINOIS



*A Napier near
Cakutta, India*

The Napier-Timken-Equipped

Fine cars of Europe, like fine cars of America, are Timken-equipped. For luxurious performance and exclusive character European engineers select the same bearings which are so nearly universal in this country.

Timken popularity, prestige and sales effect are really the inevitable result of sheer excellence.

The Timken Roller Bearing Co., Canton, Ohio

How to lose a customer~

Offer something else
when friend customer
asks for standard goods

Sell them what they ask for. Concentrate on the items that are tried and true. Selling effort is expensive, and you make the biggest profits on the merchandise that sells the easiest. That's why successful accessory dealers feature

WEED CHAINS

For Passenger Cars,
Trucks and Busses

Motorists know WEED Chains because they have used them for over 24 years, over all types of roads and under all possible conditions. No wonder so many ask for WEEDS when they come in for tire chains. They have a confidence in WEED Chains that has been built up through long and satisfactory use.

AMERICAN CHAIN COMPANY, Inc.
BRIDGEPORT, CONNECTICUT

In Canada: Dominion Chain Company, Limited, Niagara Falls, Ontario
District Sales Offices
Boston Chicago New York Philadelphia Pittsburgh San Francisco
Makers of WEED Bumpers and WEED Levelizers



WEED Chain Displays
fit any window, counter
or shelf top



Attractive WEED Displays liven up your store and bring you added profits. Put these reminders where your customers will see them.

WEED CHAIN Display Rack

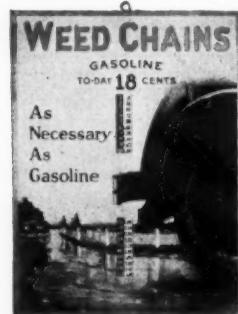
With this stand you can show two types of WEED Chains. The simplicity of the connecting hook and the sturdy construction of the side and cross chains are shown to good advantage.



Display Card
This attractive display card is effective all the time because Wet Rubber slips and WEED Chains are necessary for prevention of skidding every month of the year.

Three-in-One Sales Cabinet

Make three sales instead of one. Sell a box of WEED Cross Chains and a pair of WEED Pliers with every set of WEED Chains.



Gasoline Price Computer

For dealers who sell gasoline, this metal hanger is indispensable. Tells instantly the total cost from 1 to 20 gallons.



Window Streamers

A striking reminder to those who pass by your store. Put up one or two during rainy weather when wet rubber slips and skids.

MAR 18 '27

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Volume LI

MOTOR AGE

Number 11

CHICAGO,

MARCH 17, 1927

1927

Follow Up Equipment Exhibits

Dealers and Garage Men Have Unusual Opportunity to Hold Interest and Gain Confidence of Car Owners by Showing and Demonstrating Improved Machines and Tools

AT the automobile shows of the present season many dealers and garage proprietors have had the opportunity for the first time to view complete working exhibits of shop equipment. These exhibits were staged by manufacturers and jobbers at considerable expense for the purpose of helping both the trade and the general public to get a better defined idea of the importance of modern tools in the servicing of motor vehicles.

The public showed such extraordinary interest in these demonstration exhibits that the wise tradesman might do well to follow up this interest and see that his customers are given an invitation and opportunity to view the equipment in his own shop. And others would do well to get some new equipment in order to make their shops fit for the public to see.

There is no longer any question about the value of equipment that has been properly designed and proved in actual use. There are many machines and tools that not only save time but do the jobs for which they were designed much better than they can be done by hand. To operate a repair shop successfully on flat rate it is essential to have certain equipment.

The motor car owners, who are the trade's customers, are learning more about the mechanical features of their cars and demanding better maintenance service. They are tired of guess work and patch work. They know that in the manufacture of their cars the best machinery that it is possible to obtain has been used and has resulted in lower costs and higher standards of quality. They are beginning to ask why similar methods cannot be applied to the maintenance business as an assurance of faster and more dependable repair work at lower cost. They want better service.

There is an opportunity for the dealer and garage man to capitalize on the public interest in shop equipment, but in this they should have the active cooperation of the manufacturers and distributors of the equipment. The manufacturers should follow up the advantage gained at the show and see that their products are kept constantly before the shop and should give the shop operators every assistance in telling the public about the tools and machines that will save money for them and give them better repair jobs.

And it should be considered that the exhibits this year are only the beginning in a broad campaign to still further popularize good equipment. At future shows the manufacturers will want to take advantage of the lessons learned this year. Some who did not take sufficient space will correct that deficiency next year. Others who neglected to properly demonstrate their devices no doubt will see to it that experts who can show exactly how the tools work are in charge of their booths at future shows. And some who were only half-hearted this year and did not make an earnest effort to sell their products will wake up to the business they have forfeited by their negligence.

MOTOR AGE subscribers, the most progressive men in the business, are daily showing their interest in improved equipment by asking the editors about the purchase, installation and use of devices that will help them render better and more profitable maintenance service.

There is opportunity in shop equipment for the dealer, distributor and manufacturer who will recognize that in the last analysis the car owner is its ultimate consumer and is eager to learn through his service station more about the equipment that he is helping to pay for, and which should save him money.



Sales room of Harrisburg Motor Sales Corporation



AUGUST ZVARA

BEHIND the \$200,000 business of the Harrisburg Motor Sales Corporation of Harrisburg, Illinois, is the romance of a poor immigrant boy who is now the president of this thriving business.

August Zvara was born in Hungary and at the age of 17 came to the States penniless and unable to speak the language. He started work in the Pennsylvania coal mines, leaving this to take up farming in Missouri. In 1913 he opened up as a steamship ticket agent in Harrisburg. At the commencement of the war period in 1917 Mr. Zvara decided that the automobile business was the most promising field, and so he took the plunge by buying, and selling, a used car.

Then he bought a couple more and sold them. - De-

Poor Immigrant at 17 \$200,000 Busi

*Native of Hungary Who Came
Automotive Industry*

By H. LIONEL

troit was his source of supply and southern Illinois his market. Soon these twos and threes became carloads, and Mr. Zvara was well on the way to prosperity.

In 1920 and 1921 he handled the Chandler and Gardner agencies with fair success, and then the Harrisburg Motor Sales deal came along. This company had been in existence some time but was in a more or less moribund condition and the management was seriously considering closing out.

Mr. Zvara, however, took over 50 per cent of the stock and reorganized the business, capitalizing for \$10,000.

In the fall of 1920, when he had his own business,



The new home of Harrisburg Motor Sales Corporation

—Now Heads Dealer ness

*to America in Youth Has Made
Bring Him Prosperity*

WILLIAMS

Mr. Zvara sold 12 cars. In 1921 he sold 48, and the next year, 1922, he sold 63. The year of the reorganization 128 Willys-Knight and Overland cars were sold. In June of 1924 the company was appointed Hudson-Essex dealer with a paid-up capital of \$50,000.

During these busy years the population of Harrisburg and suburbs had grown from 7000 to 15,000, but competition had grown, too.

Keeping pace with the times, the company now built new premises incorporating a large showroom, stockrooms and a well-equipped service department. They were now definitely committed to big business and a

A FEW months ago when Mr. Zvara was departing for a vacation trip to his old home in Hungary, his first visit there since he came over as an immigrant at 17, he wrote to MOTOR AGE as follows:

"I do not want to miss the next issue of MOTOR AGE. Please mail me one copy in care of Holland America Line, Budapest, Hungary."

profit on every sale. "Service" was Mr. Zvara's answer to the problem.

Two floors 50 feet by 100 feet were set aside for storage and repairing. One end of the upper floor was fenced off to form the tool room containing a lathe, drill press, emery grinder, acetylene welding set, valve refacer, etc.

Three mechanics were employed and the company set out to give service to any and every automobile. The most valuable piece of equipment that they possess, according to Mr. Zvara, is the wrecker which consists of a Reo speed wagon fitted with a wrecking crane.

Here, then, was the new policy of the Harrisburg Motor Sales Corporation—to give service to every automobile user and so make friends, for every user is a prospect for a new car.

How successful this policy has been is demonstrated by the results. Business has increased by leaps and bounds, and more than half of it is consummated on the show room floor. People come in from all over the surrounding counties for service, and while they are there they buy.

They buy because they can see the class of organization behind the product. The goodwill is already there because of their experience with the repair department. Needless to say, only expert mechanics are employed and they are paid the highest rates, because they are recognized as the real salesmen of the institution.

Every customer for repairs is interviewed by the service manager, and honest advice is given on all repairs. Backing this up is a \$15,000 stock of repair and replacement parts.

Another point of contact is the storage department, which is located on the lower floor. Storage fees help the overhead considerably, and most of the floor space is available during the daytime, but the big point is *contact*, the first essential of goodwill.

Only one salesman is employed in the field. Mr. Zvara himself travels the territory occasionally, the service manager and the bookkeeper handling the inside sales at such times.

Other salesmen would be employed in the territory if men of the right caliber could be found, but such are scarce in southern Illinois. And so the business goes on thriving, in spite of the small sales force, because the policy that guides it is ideal under the special circumstances. The prospects come to the dealer, because he gives something that creates confidence. In the words of Mr. Zvara, himself, Service is the basis of Success.

Making *The Used Car*

MOTOR AGE Platform for Greater Dealer Profits

- ¶ More net profit per dollar of sales.
- ¶ Elimination of used car losses.
- ¶ Make the used car a profit producer.
- ¶ Eliminate unmerchantable cars from the trade.
- ¶ Put the maintenance department on a profitable basis.
- ¶ Boost profits by accessory sales.
- ¶ Tires will help swell your profits.
- ¶ A fair flat rate plan for customer and mechanic.
- ¶ Get a profit from parts and supplies.
- ¶ Develop sales possibilities of territory to full extent.
- ¶ Dealer must not be forced to take more cars than his territory will absorb at a profit.

If it were possible by the magic of the printed word or a patented formula to make the used car a profit producer it would have been done long ago. The volumes that have been written on the subject would fill a library, and the "plans" that have been formulated, tried and discarded are almost as numerous as the used cars themselves.

There have been some good things printed about how to handle used cars at a profit. One trouble with far too many dealers, and others in the automotive industry, is that they will not read the helpful things that are at hand, or having read them they disdainfully say, "it won't work," and go on in their losing ways.

The purpose of this article is not to tell anybody how to make money from used cars. But its purpose is to present a frank discussion of the possibilities and difficulties in connection with the problem of handling used cars at a profit. If, by means of this article, we can get only a few of the thousands who will read it to thinking seriously about the folly of going on buying and selling used cars at a loss, our object will have been accomplished.

The future of this industry, for the manufacturer, distributor and dealer, requires that the dealer make a reasonable net profit. If it shall continue to be necessary for the dealer to buy and sell used cars at a loss so great as to seriously impair, and in many cases entirely eliminate, his profit from new car sales, then an unhappy day is not far off for the manufacturer.

Must Have More Profit

The dealer must have more net profit per dollar of sales. There is no doubt about that proposition. The problem is how to get it.

In last week's article in this series we discussed used car losses and how they might be eliminated. Thousands of dealers would be satisfied if they could elimi-

*The Dealer Who Expects to Get
pose of the Second-Hand
and He Might as*

By SAM

nate used car losses and would be glad to go on handling them on the basis of breaking even.

And yet it is not economically sound that so large a volume of business as is represented by used cars should be handled on the basis of no profit. Used cars, so long as they are bought and sold, are merchandise, and merchandise is the stock in trade of the merchant. No good merchant will continue to handle an item of merchandise, constituting a large volume of his business, upon which he must consistently suffer a loss.

What are the possibilities of making the used car a profit producer?

First, it must be bought right.

Most dealers who have been in business for any length of time know pretty accurately what the resale value of a used car is. If they don't, it is time they were learning.

Knowing the approximate resale value of a used car, the next thing for the dealer to do is to determine what he can pay for that car and still make a profit on it.

And it is important for the dealer to remember that whenever he takes a used car in trade he is accepting it as the equivalent of cash to the amount of the allowance.

Determining the Allowance

Let us suppose that a particular used car will sell for \$500 in good condition. Then the selling cost at 15 per cent, which includes salesman's commission, advertising and overhead, will amount to \$75. Then let us assume the dealer wants a 5 per cent net profit on this car. This will be \$25. Going a little further we find that it will cost \$50 to refinish the car and otherwise put it in good salable condition. Then we have a total of \$150 which must be deducted from the admitted resale value in order to determine the price the dealer can afford to pay for the car. Even so the dealer takes a chance, and a legitimate chance in business, that he may not be able to sell the car for quite as much as he estimated or that the selling or reconditioning cost may exceed his estimate.

Buy the car right, is the first essential.

Second, it must be salable.

Far too many used cars are offered in an unsalable condition. They are taken in "as is" and offered for sale "as is," often without washing and without any effort to improve either the appearance or the mechanical condition. It is no wonder that used cars produce a loss when handled in this way.

Merchant or Horse Trader?

The dealer says they are not worth spending money on. But is he a merchant or a horse trader?

Shabby merchandise will never produce profit for the retailer. It must look good and must be displayed in attractive surroundings. Any used car that is worth

a Profit Producer

*His Legitimate "Net" Has to Dis-
Problem Sooner or Later
Well Begin Now*

SHELTON

\$300 or \$400, or more, is worth putting into presentable and serviceable condition before being offered for resale.

In the right kind of establishment the cost of putting such a car in salable condition need not be great. This does not mean the car must be completely overhauled. The prices that can be obtained for most used cars do not justify the expense of a complete overhaul.

But these things can be done:

The car can be completely washed and cleaned, including engine and underparts.

It can be refinished with lacquer at no great expense, but if not in need of refinishing it can be polished and all nickel parts shined. Tires if still serviceable can be cleaned and painted. The top in any case can be given a coat of dressing that will immeasurably improve the car's appearance.

These things take care of the appearance of the car and if performed in an intelligent manner are not expensive. Probably the greatest boon to the dealer who would improve his used car position is the ease and speed with which lacquer paints may be sprayed on. One Ford dealer handling a large volume of used cars and having his own paint spraying equipment actually was able to refinish used Fords at a cost of \$3.50 each. Of course he had to use intelligence.

Intelligence Should Be Used

The mechanical reconditioning of the car should be handled with equal intelligence. As previously stated, it seldom pays to undertake complete rebuilding or overhauling jobs except on the higher priced cars. Without great expense, however, it is possible to clean carbon and grind valves, clean and adjust carburetor, spark plugs and ignition points; adjust or replace connecting rod bearings, adjust main bearings, front wheel bearings and steering gear, stop water or oil leaks and thoroughly lubricate car.

In addition, headlight reflectors should be polished and all lights should be checked to see that no bulbs are missing. The interior of the car should be cleaned and special care should be taken to see that windows and windshield are spotless. A new or rebuilt battery should be installed if the old one is done for.

If the car as taken in is without some necessary accessories or the ones on it are broken or disfigured, it frequently will pay to put on new ones. Where it is done intelligently the money thus expended is usually more than repaid.

In many cases the mechanical reconditioning of the car can be carried still further. Sometimes when it is possible to put the car in new appearance without much expenditure it will still be found that the mechanical condition does not measure up to the looks. In such cases it may be found advisable to recondition cylinders and install new pistons and rings, or to overhaul transmission, clutch or rear axle. The shop that

More About Used Cars Next Week

Some of the best dealers in the United States have told MOTOR AGE what they think about the question of making a profit from used cars.

There are some who are doing it and others who say it cannot be done under present conditions.

What these men have to say on the subject is of vital interest to every man in the automotive industry.

Their views will be presented in full in next week's issue of MOTOR AGE.

In furtherance of the MOTOR AGE campaign for greater dealer profits other readers are invited to express their opinions on any or all of the planks in the platform printed on preceding page.

is properly equipped with tools and machines can greatly reduce the cost of these operations.

One dealer who says he makes money on use cars has a special used car reconditioning shop in which good serviceable work is done, but in which the standards are not quite as high as for similar jobs done in his regular maintenance department on owners' cars. It is a matter of not putting more money into a car than is justified by the price for which it can be sold.

Used cars of fairly late models that are put into reasonably good mechanical condition and made to look good can be sold for substantially more than can cars of same makes and models in an apparent condition of neglect. There are used car salesrooms in Chicago, and other cities, in which at first glance the merchandise looks new. Cars of the medium price class are being sold in these salesrooms at prices from \$200 to \$300 higher than "as is" cars of the same type are being offered by other dealers. The differential usually more than pays for the cost of reconditioning.

Public Confidence Necessary

The third requisite for selling used cars at a profit is public confidence.

The dealer must have proved to the public that he is reliable. When he has done that the better class of used car buyers will pay a substantial premium for the peace of mind that his reputation gives them.

As a fourth and final consideration, but one that comprehends all the others, we will name "sound business methods."

This includes accurate accounting so that the dealer knows his costs and knows where he makes money and where he loses it.

Can the used car be made a profit producer?

It is a challenge to every dealer who is worthy of the name "merchant."

The Cause of Lamp

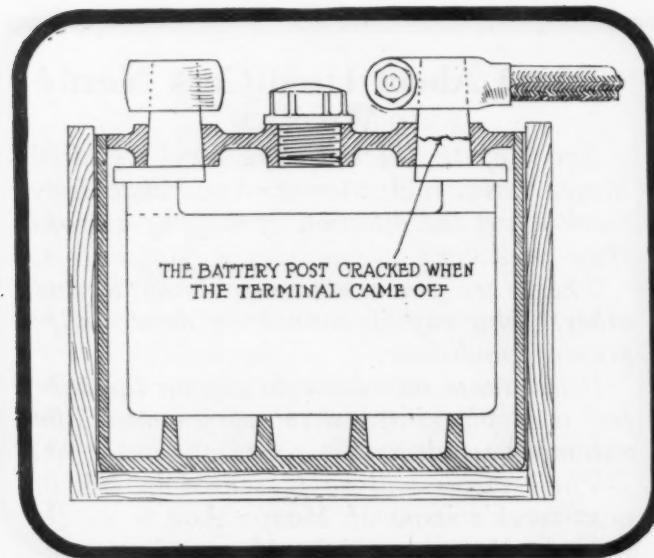


Fig. 5

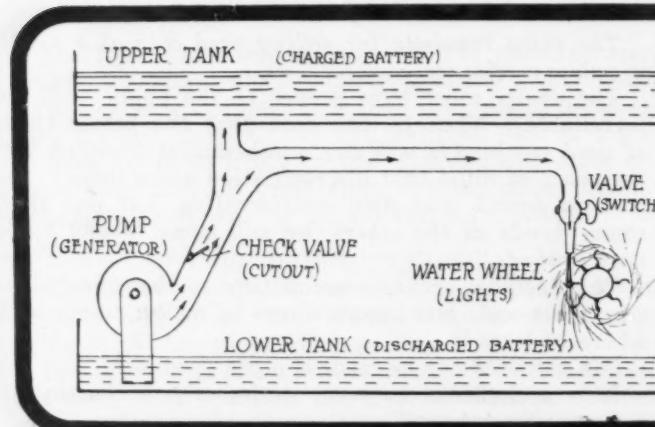
Damage done to battery by not using a good terminal puller. The cracked battery post prevents free flow of current to battery and causes the generator output to burn out the lights

HERE had been a red glow in the sky to the south when Bill went to bed, but he thought little of it. The next morning as he picked up the Westville Times he saw the reason. Blazoned across the first page was the headline, CENTRAL GARAGE OF PHOENIXVILLE GOES UP IN FLAMES. Then followed details. A colored employe, more industrious than cautious, had used gasoline and a wire brush to remove caked grease from parts of the chassis. "Defective wiring," so the report continued, "had done the rest."

But Bill Fixit had his own ideas as to what had happened and when the shop gang had gathered to hear Bill's theory he expressed the opinion that the colored fellow had touched a live terminal and the frame of the engine at the same time, thus completing a short

Fig. 1

Water circuits which compare to the electrical circuits on the automobile. The pump is supplying water to the upper tank and water wheel as the generator supplies current to the battery and lights



Bill Fixit Takes the Mystery Out of Shorts and Opens and Shows What Really Is the Cause When Lamps Frequently Fail

By A. H. PACKER

circuit and causing a flash which set the gasoline on fire.

Then Tony Pabolenski, the battery man, better known as Pitch, wanted to know where a fellow could touch a terminal when cleaning the car, for he knew that the battery on most cars was hard enough to get at when it needed water, and therefore not likely to be disturbed by accident.

Finding a Live Terminal

"How 'bout it, boys?" said Bill. "Where is there an easy place to hit a live terminal?"

"Around the lamp plugs," said Valvy.

"At the foot of the steering column where the switch is," said Steel.

"At the live generator terminal," said Valvy. "I mean at the cutout terminal."

"That's better," said Bill. "That's a very likely place, but if there are any places where a wire might be shorted while working on the car, what does it mean to you fellows?"

"Me know," said Pitch. "Unhooka da bat and no setta on fire."

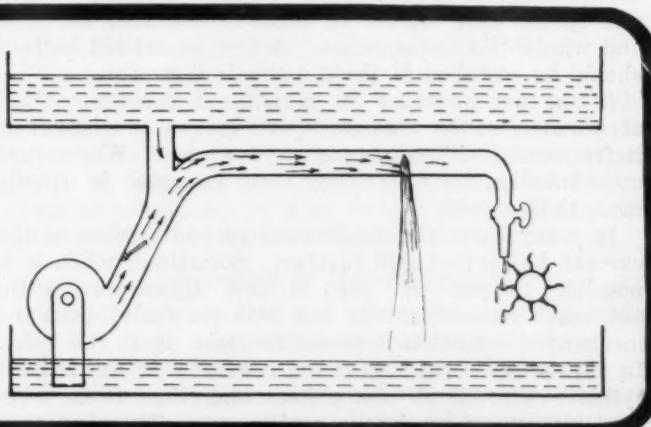
"Yes," said Bill, "and it is the first thing to be done in nearly every major mechanical operation in our flat rate schedule, for even if there is not a lot of gasoline spread round, there is no use shorting the battery and taking a chance of blowing a fuse or burning a wire."

Strange Case of Lamp Failure

The boys were much impressed and two weeks passed without any unusual incidents occurring in the Bill Fixit shops.

Then a strange case developed—an old story to Bill, but new to some of the men in his shop. One of Bill's

Fig. 2
A short circuit illustrated with water circuits. It robs the water wheel and shows that on a car the lights would be robbed of current but not overloaded or burnt out



Burnouts Explained

good customers who had been in for a carbon and valve job began to complain that he could not afford to run the car any longer as it kept him broke buying head lamp bulbs.

Caught out on the road without lights he had stopped at a wayside garage and had been told that his car had a short which was burning the bulbs and that he had better carry a few spares. This he had done, but the trouble persisted and caused untold annoyance.

"How about it?" Bill asked at the next shop conference. "What makes the bulbs burn out? Is it a short, an open, a loose connection, or what?"

There was an intense silence. The Red Head knew, Valvy thought he did, but the rest were afraid to hazard a guess, so Bill decided it was time to go thoroughly over the various possibilities and show exactly what any sort of wiring trouble would do to the lights.

"But no wiring diagrams this time," he said. "It will be nothing but pictures, but I hope they will show you what happens in the electrical circuits."

And Bill drew a sketch on the blackboard (Fig. 1) showing two water tanks, one above the other. Then he added a water pump which would raise the water from the lower to the upper tank, then showed a branch pipe carrying water through a nozzle to a water wheel, then showed a check valve just above the pump, so that if the pump stopped the water could not flow back through the pump to the lower tank, and lastly he added a valve in the nozzle just above the water wheel so the flow there could be shut off when necessary.

Generator Likened to a Pump

"Now," said Bill, "what's the water pump like in our electrical system?"

"He lika da gen," said Pitch.

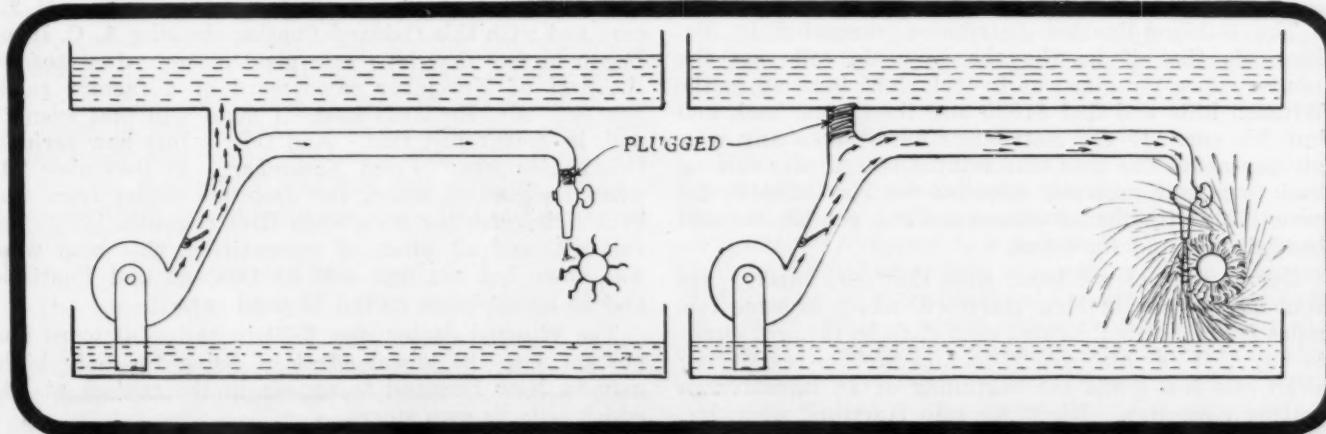
"And the tanks?" Bill wanted to know.

"Like a battery," said the Valve Grinding Fiend. "When the water is in the upper one it's like a battery fully charged and when it's in the lower one it's like a discharged battery."

"And the water wheel," said Red, "is like a lamp or horn or cigar lighter or starter or any unit on the car that uses electrical current."

Fig. 3

A plugged pipe at the water wheel illustrates a poor connection at the lamp socket. It makes the lamp dim but does no permanent harm



THIS is the second article in a new *Bill Fixit* series. The first one appeared in the February 24, 1927, issue of *MOTOR AGE*.

"Fine," said Bill. "Now we will start with this sketch (Fig. 1) and see what happens when the car runs and lights are turned on. In our water illustration the pump will pick up water and send some to the battery (the upper tank) and some to the water wheel (lights). If the water wheel (lights) is turned off the pump (generator) can still send current to the upper tank (battery). If the pump (generator) stops, the check valve (cutout) will close and prevent discharge while the upper tank (battery) can still supply current needed by the water wheel (lights)."

"Now we are ready to see if a short circuit can burn out the lights. In our illustration it would mean that the water wheel would have to get too much water under pressure so that the blades would be bent or broken or the bearings burned out, but we can hardly see how the wheel would be hurt if the flow of water is cut below normal."

Short Circuit in Water Line

"Now a short circuit is exactly what it says, a shorter path for the current to flow so that it can get back without going where it should, and in our water illustration it corresponds to a break in the pipe (Fig. 2) which would rob the water wheel rather than give it too much pressure or current. This leak, if a bad break, might take all the generator output and even take some current from the battery, so we see that a short circuit will never burn out the lamps."

"Now we will see if a bad connection will burn out lamps, and first we will consider a bad contact at the lamp plugs which corresponds to a plugged pipe near the water wheel (Fig. 3). This slows up the flow of

(Continued on page 19)

Fig. 4

A plugged pipe preventing flow to the upper tank is like a poor connection in the battery charging circuit. With flow to the tank stopped the water wheel will be violently overloaded. With flow to battery stopped the lights will burn out

Salesman Hits Prize-Winning Stride in 6 Months

Record of B. Arthur Richards, Without Previous Experience, Won Him an Associate Dealership and Substantial Factory Awards

By WILLIAM J. JOHNSON

A MAN may be down but he is never out," runs the slogan of the Salvation Army. The Army, which makes it a business to reclaim men, knows from experience. And, that a man may be down, but not out, is fully exemplified in the case of B. Arthur Richards of Winsted, Conn., factory prize winning associate dealer of the A. C. Hine Company of Hartford, Conn., state distributor of the Oakland and Pontiac.

Prior to May, 1926, Mr. Richards had no experience in selling motor car transportation. It was a new, strange yet fascinating field to him.

From May 22, 1926, to January 1, 1927, Mr. Richards, a mere novice in the field, sold 113 units, that is to say 78 new Oakland and Pontiac cars and 35 used cars. He carried off second prize in his class in a factory nation-wide sales contest. He developed the Winsted territory, out in the sticks, to the point where it has become fertile territory for the A. C. Hine Company.

Last May Mr. Richards came to Hartford and looked up A. C. Hine, president of the A. C. Hine Company, in the belief that he could sell motor cars without any previous experience.

"He wanted the loan of a car," said A. C. Hine in speaking of his prize winning salesman. "He said he knew that he could sell it. He laid his cards on the table face up. He unfolded his complete story and, while I was much impressed I could not see why I should pass over a new car to him just because he thought he could sell it. I could, as a matter of fact, do that same thing every day in the week. But the fact remains that he did sell the car and has sold enough of them since to top the list in our state wide organization."

The Oakland-Pontiac distributor suggested to Mr. Richards that if he thought he could sell cars the proper caper for him was to trot right back up in the Winsted hills and find \$1000 and then come back and buy his car. If the distributor entertained any misgivings about the man who wanted to sell cars coming back they were promptly dispelled for Mr. Richards did come back with that thousand dollars, got his car and headed west and for home.

But he did not get home with that car, hardly. He shut off the gas in New Hartford, which is some few miles from Winsted, hunted up a chap he thought ought to buy that car and sold it to him pronto, registering clean sale No. 1 and the beginning of an intensive go getting campaign. Right back to Hartford went Mr.



B. ARTHUR RICHARDS

Richards for another car and again he stopped off in New Hartford and made clean sale No. 2, concluding that he might as well call it a day. The next morning he was back at the Hine establishment looking for the president and, finding him, took away another car and since that time sales have been made with what might well be termed refreshing frequency. When he took the third car, the distributor said to himself: "Here is a real go-getter. I need him." Thus Mr. Richards through his selling ability won recognition and duly became an associate dealer in Oakland and Pontiac.

From May 22, 1926, when the associate dealer took his first car until August 1, 1926, he sold 23 cars. From August 1 to November 1 of the same year he sold 22 cars and with this Oakland-Pontiac showing A. C. Hine began to feel that he was a good picker. Just before the first of November came word of a factory sales contest. Mr. Richards said, "I must win that event," and, he meant just that. And this is just how serious this novice was: From November 1 to December 20, when the contest ended, the associate dealer from the back hills, with the state wide Hine organization going full tilt, and all kinds of competition, this man who was down but not out, sold 33 Oakland and Pontiacs and as a side issue moved 35 used cars.

The Winsted dealer won \$550 in cash, but more important was the moral effect of being the only high man in New England to appear in the contest at all, which tells its own story.

The Risk in Time Sales to Minors

*Courts Generally Permit Infants to Avoid Contracts Except for
Necessaries and They Have Held Automobile
Is Not a Necessity*

By WELLINGTON GUSTIN

ADISPATCH from Washington, published in the Dec. 23 issue of *MOTOR AGE*, regarding a minor's responsibility as a buyer of an automobile, indicates its importance to the trade. The article is entirely too optimistic in this regard, for the dealers will not find their difficulties in dealing with minors so easily solved by reference to the rules laid down in this case when it is decided. But the case does serve to bring up the question, and all the information given out will be valuable to every business man as well as dealer.

The decision of the Supreme Court of the United States, while of the greatest importance in most cases because of their wide application throughout all the states, has little more than a local effect in the automobile industry in the case indicated. The case is in this august tribunal because it has jurisdiction as a court of appeals for all matters arising in the District of Columbia and the Federal territories. Had the questions arisen in the states they would have been decided in the state courts, whose interpretation of the particular rules of law in question might, for various reasons, be at variance with the Federal courts.

Suppose a dealer in any of the 48 states sells a car to a minor and resort to the courts is necessary. Action must be brought in the state courts in every case, except perhaps where the parties are citizens of different states and the amount involved exceeds \$3000. And in those few cases where the action might be brought in the Federal district court that court will administer and apply the state law where possible. The state determines who has the capacity to enter into contract, his disabilities, his rights and responsibility.

State Laws Apply

The constitution of a state may set up limitations on its citizens or do so by legislative enactment, which might affect the determinations of state courts, so that the decision of the Supreme Court of the United States on a matter arising in Federal territory or where Fed-

The Dealer and the Law

*In this article Wellington Gustin, attorney-at-law, points out the risk taken by the automobile dealer in entering into sales contracts with minors. The general rule is that the minor may avoid the contract, return the automobile and recover the money he has paid, even though the automobile may have been damaged. And the dealer is not justified in relying upon the purchaser's statement that he is of age. Nor does it help him to have an adult as surety. Mr. Gustin each week through the columns of *MOTOR AGE* answers questions of subscribers on the general principles of law that apply to automotive business transactions.*

eral laws only are administered, should not, and do not, become paramount over state decisions. If a particular state has no laws adverse to a Federal ruling, then, on the same question, a decision of the Supreme Court of the United States would be very powerful in persuading a state court to adopt it. This will be the force and extent of the Federal decision about to be handed down, and dealers should not jump to conclusions on the law in their own state simply from the decision.

However, the decision may help to crystalize and unify the rules among the various states as applied to the automobile. The rules are as old as the hills, but the application is to a modern article of trade, commerce and transportation combined. As yet there appears to be no occasion to change the laws regulating contracts with minors, simply because he buys an automobile, which would not apply with equal force to other personal property.

The courts have pretty generally agreed in their decision that an automobile is not a necessity to a minor, by which a dealer may recover as for necessary article sold

him.

The basic rule in the matters in question is that a minor is under a disability and may not contract in his own right. Rather, his contractual capacity is limited. Generally his contracts for necessities are valid and cannot be avoided. But there are exceptions to this rule, as where the parent or guardian is making ample provisions for such necessities.

Automobile Not a Necessity

Now if the courts hold that an automobile is not a necessity to a minor under the state laws governing minors, then a dealer may not take the risk of selling to a minor and expect to collect as for a necessity sold.

In an Illinois case, *Lein vs. Centaur Motor Company*, 194 Ill. App. 509, the court held an automobile not to be a "necessity" to a minor, although it was used by him for earning his living by carrying passengers for hire, and, further was not used for pleasure or as a luxury. Apparently this ruling leaves little for argument on

(Continued on page 20)

New Chandler Models in Royal Eight Line

FOllowing the introduction of its Royal Eight five passenger sedan, first shown at the New York Automobile Show, the Chandler-Cleveland Motors Corporation has added four new models to the Royal Eight line.

The entire line now consists of a five passenger sedan, seven passenger sedan, four passenger coupe, seven passenger touring car and a sport roadster with rumble seat in the rear deck for extra passengers. The price range is from \$2195 to \$2295, all models except the new seven-passenger sedan listing at \$2195.

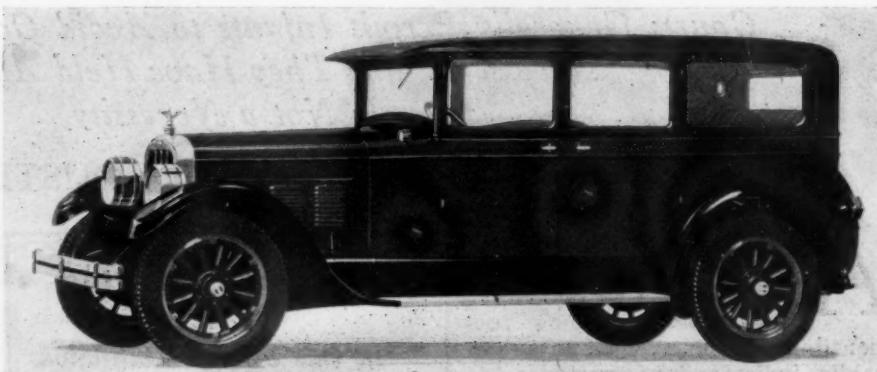
All models carry the same mechanical equipment as the Royal Eight five-passenger sedan. This includes an air cleaner, oil filter, thermostatic heat control, four wheel brakes, centralized "One Shot" chassis lubrication, self-adjusting spring shackles, etc., but details of interior finish and upholstery vary according to models.

The five and seven passenger sedans and the four passenger coupe are available either in silver-gray Mohair or champagne-toned broadcloth, at the option of the owner, at no extra cost.

The roadster is upholstered in genuine hand-buffed leather, toned in tan to harmonize with the striking color effect of the car. The seven passenger touring, a very popular model in export circles, is upholstered in genuine hand-buffed leather a trifle more subdued in tone than that used in the sport roadster.

The closed cars in the Royal Eight

The 4-passenger coupe at \$2195



The new 7-passenger sedan listing at \$2295

line are completely appointed. In the rear tonneau of the five and seven passenger sedans there are comfortable arm rests at either side of the seat with shaded reading lights and silken toggle grips above; a vanity case and smoking set rigidly built into either side of the body, a bronze robe rail with decorative hand grips at either end, and a foot rest.

The four passenger coupe has many of the same features, with a few exceptions. Instead of the two cases, this model carries a combination smoking set and vanity case also rigidly inset into the right side of the body.

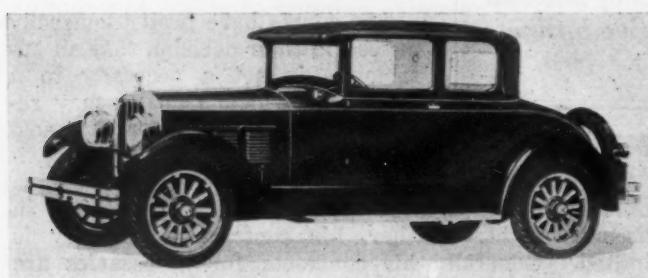
All three closed models are equipped with a forced-draft heater.

On the dash of all models, set into an attractive bronze panel, is an electric clock, in addition to the thermom-

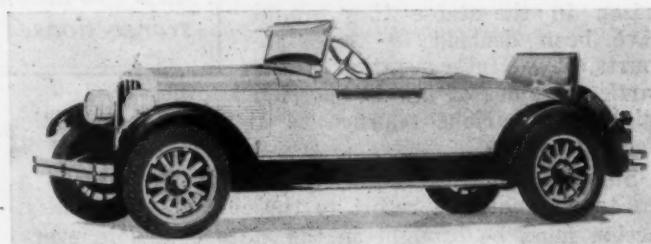
eter (which records the temperature of the cooling system), speedometer, oil and gasoline gages and ammeter. There is also an ingenious cigar lighter with a clever spot light attachment to turn it into a trouble light.

Attractive Color Choices

The color choices include Holyoke blue on the 5-passenger sedan, two-toned fawn or dark blue on the 7-passenger sedan, Sheridan grey or two-tone green on the 4-passenger coupe, two-tone grey green, Luxor blue or dark blue on the 7-passenger touring, and two-tone fawn on the sport roadster, with a clever $\frac{1}{2}$ inch stripe of Madenna red between the black and gold striped bead at the top of each door.



The sport roadster with rumble seat at \$2195



Windshield for Rear Seat

ARUMBLE seat windshield which folds into the rear seat compartment when this seat is not used has been developed and is being placed on the market by the American Injector Co. of Detroit. The windshield which is provided with wings and an apron at the bottom and sides attaches directly to the upper cross member at the front of the rumble seat opening. When not in use the glass folds down onto the seat, no part of the mounting being visible.



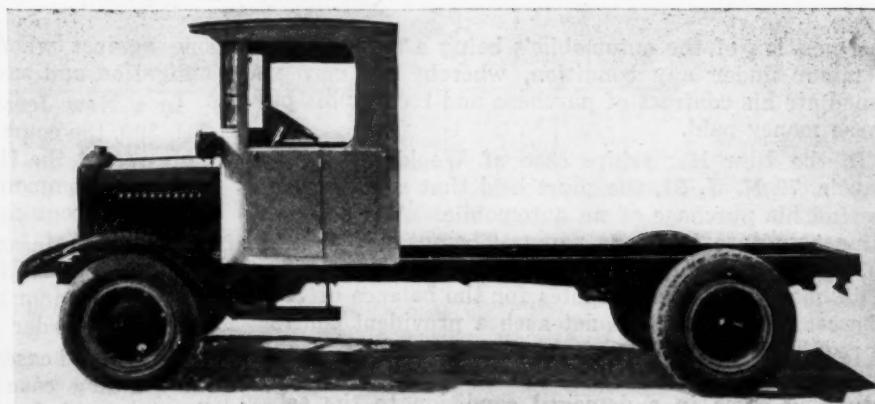
The American disappearing rumble seat windshield mounted on Buick car

45 Chandler Appointments

CLEVELAND, O., March 11.—The Chandler-Cleveland Corp. announces the recent appointment of 45 new Chandler distributors and dealers. Among the points covered in the new appointments are: Regina, Sask.; Los Angeles, Cal.; Chicago, Ill.; Poughkeepsie, N. Y.; Evansville, Ind.; Jackson, Mich.; Detroit, Mich.; Ann Arbor, Mich.; Culver City, Cal., and Meridan, Conn.

The Clarkspeed Six Truck

A NEW high speed truck which is said to be capable of 40 miles an hour is known as the Clarkspeed Six, and is a product of the Clarkspeed Truck Co., Pontiac, Mich. It has a carrying capacity of 2½ tons and is powered with a 60 h. p. Continental Red Seal six cylinder engine having bore and stroke of 3½ in. by 4½ in. The engine has seven main bearings and uses a full pressure oiling system. The wheelbase is 127 in. Tractor type 152 in. for 12 ft. and 168 in. for 14 ft. body. The price of the chassis only is \$2685, f. o. b., Pontiac, Mich. Tires are 32 by 6 front, 36 by 8 rear, cord truck pneumatic. 36 by 10 cushion tires may be had at the rear if desired. Equipment includes 1¼ in. Stromberg carburetor, American Bosch electrical units, Willard storage battery,



Clarkspeed 2½-ton truck

Brown Lipe clutch of the multiple dry Wisconsin rear axle, Shuler front disk type, Brown Lipe four speed axle, Ross cam and lever steering gear, transmission, Pick universal joints, steel disk wheels and Firestone rims.

An Automatic Choke

A N automatic choke which can be applied to any carburetor is a development of E. J. Hifner of Lexington, Ky. The device incorporates a spring and a member which is governed by the vacuum in the intake manifold. With the engine standing the conventional choke, which is a part of practically every carburetor, is held closed. As soon as the engine starts, however, the choke opens more or less in proportion to the engine's need. In normal running the choke is held in the open position.

Takes on Hupmobile

SPOKANE, Wash., March 12.—Harry E. Oechsli, pioneer automobile dealer of the Inland Empire, has taken over distribution of Hupmobile for that section, his territory covering western Montana, northern Idaho and eastern Washington to the Columbia river.

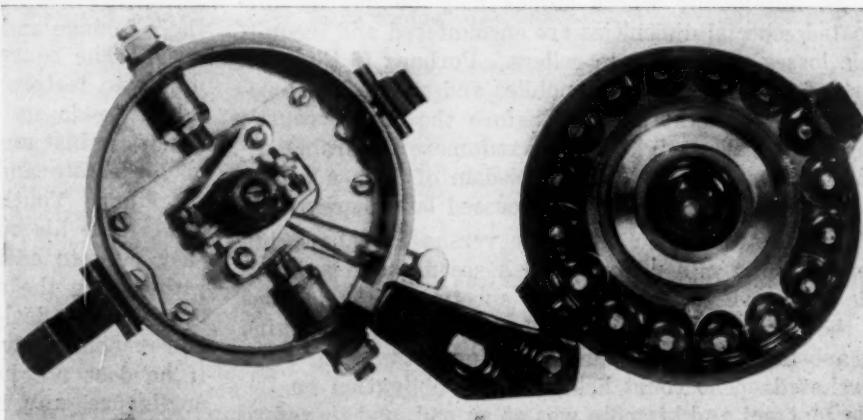
The Cause of Lamp Burnouts Explained

(Continued from page 15)

water to the wheel just as it slows up current to the lamp. It will also give more water to the upper tank which on the car corresponds to sending a little more current to battery, but it will never burn the lamp out.

"The poor contact is the cause of lamps burning out, but only when it is in the charging circuit so that it interferes with the generator sending current to battery and forces the generator to deliver its current to the lamps or other electrical units in use at the time. This corresponds (Fig. 4) to the pipe just below the upper tank being clogged up so that the whole power of the pump is exerted in sending a flow of water to the water wheel. This will spin it too fast and is like the electrical system where the lamps get the whole generator output and burn up instantly if the battery becomes disconnected while the lamps are turned on and the generator is being driven by the engine at a fairly high rate of speed."

Distributor on the New Safety Stutz



Here is a new Stutz ignition distributor which utilizes two separate coils, two condensers and two sets of breaker arms operated simultaneously by an eight lobe cam. In this system the two sets of spark plugs are fired by what is virtually two separate ignition systems except that the same high tension rotor and distributor cap are used, although there are two separate circuits through them to carry the high tension current for the two sets of plugs

"That's given me a better idea of it than I ever had before," said Steel, the machinist.

"Me understand, too," said Pitch.

"How about you, Valvy?" Bill wanted to know. But Valvy was nowhere to be seen. He had slipped away during the explanation.

"It got too hot for our champion valve grinder," said Bill. "The joke is on him, for on this job that brought up all the discussion, he disconnected the battery before starting to make sure he did not have any live wires around that might get shorted and start a fire. His speed was his undoing however, for he tried to jerk the battery terminal off without getting the puller. The terminal came eventually but in working it back and forth he cracked the battery post itself so that a few days later it vibrated off the rest of the way (Fig. 5). So now you have the whole story on the cause of lamps burning out."

"I used to think," said Steel, "that it was only at the lathe where the right tools were of much importance, but I see it applies to every job in the shop."

THE RISK IN TIME SALES TO MINORS

(Continued from page 17)

the question of the automobile's being a necessary for a minor under any condition, whereby he may not repudiate his contract of purchase and recover his purchase money paid.

In the New Hampshire case of Wooldridge versus Lavoie, 79 N. H. 21, the court held that a minor could rescind his purchase of an automobile. And so in the Minnesota case of Klaus versus Thompson 131 Minn. 10. In the latter case the minor paid \$200 as a first installment and gave his notes for the balance of \$800. The court held this was not such a provident contract to require the minor to return the automobile in good condition in order to recover the money paid down, after returning same in a damaged condition to the seller and repudiating his contracts.

However, the rule is that where a minor desires to avoid his contract and rescind his agreement to purchase, it is his duty to restore the automobile or other property to the seller in a condition so as to put the seller in *statu quo* as near as possible. The rule is general and applicable to all property, but in the case of an automobile where values may be quickly dissipated especial difficulties are encountered and inequitable losses may occur to sellers. Perhaps if this feature of the nature of automobiles and the dealers business were brought forcibly before the equity courts, the strict rules might be relaxed more favorably toward dealers. However, the wisdom of such a course is questionable, and will be discussed later herein.

In a Montana case, Stanhope versus Shambow, 170 Pac. 752, the minor purchased a second-hand automobile and gave his note with a surety for the balance of the purchase price. Later he returned the machine in substantially the same condition it was in when purchased. The court held that his obligation on the sale contract and his note was at an end, and therefore his surety was discharged.

No Protection in Adult As Surety

This case brings a warning to dealers. The seller in question believed that since the youth obtained an adult surety on the note that such note was good as against the surety regardless of the minority of the purchaser of the automobile. But when the obligation of the minor was destroyed there remained nothing for the surety to insure. So if the dealer is confronted with such a proposition to purchase by a minor offering a surety, the safe course for the dealer is to deal only with the adult who offers to be surety, making him the purchaser, and letting him shoulder the responsibility of dealing with the minor. If the surety will not become the actual purchaser, signing the contract and any promissory notes as principal, then the dealer should not sell to the minor on the frail hope that he will not later seek to avoid his obligation. And this holds true even through the minor pays cash for his purchase. For the dealer does not wish the possibility of suits to recover money paid hanging over his head, after the minor has dissipated his fortune, or otherwise, when a little precaution in advance would have prevented it. For where a youth should purchase, he can procure a proper person to act for him; at least

one against whom he is less liable to repudiate his obligation and save the dealer.

In a New Jersey case, LaRose versus Nichols, 103 Atl. 390, the court held that supplies furnished a minor who was at the time engaged in operating an automobile as a common carrier, were not "necessaries" for which payment could be enforced against him.

And in a Massachusetts case, Raymond versus General Motor Cycle Co., 230 Mass. 54, the court held that the minor cannot be held for fraud for misrepresenting his age in order to procure a motor cycle on credit.

These cited cases pretty well cover the points involved the pending case before the United States Supreme Court, as set forth in the dispatch from Washington. And while some may hope the Supreme Court may lay down some new rules, thus legislating by judicial decision, it is not probable that the state courts will change their established line of decisions on the subject.

Courts Protect Youth

Further, it is questionable whether the rules of law governing dealings with minors should be relaxed to their damage and favorable to adults—dealers or otherwise. The courts of equity will seek to require the minor to restore his gains as far as possible for the minor to do so. It also owes a duty to protect the minor against unprovident contracts lest he be stripped of his estate and become a charge upon society and the state. Youth is desirous, inexperienced and foolish. Were his contracts not voidable he would be an easy prey to crafty adults. So the law protects him rather than the adult with whom he deals. It is the duty of the dealer to know the capacity, limitations and responsibility of those with whom he contracts and if he does not he cannot take advantage of his own negligence, any more than the unscrupulous adult is permitted to take advantage of improvident youth.

Suppose the dealer sells an automobile to a minor who destroys same and cannot restore it to the dealer. Shall he be permitted to avoid his contract? Now the minor has the inherent right to avoid his contracts and where he has dissipated property received, the courts have held he still may rescind, though it be impossible to restore the property and place the seller in his original condition. There is no special reason why the rule should not be applicable to the sale of automobiles and it is up to the dealer to protect himself in the first instance. He may be able to discover equitable remedies to minimize his losses, but that is too much like locking the barn after the horse is stolen.

On the question of misrepresentation of his age by a minor, it seems that the decisions put the burden on the adult to know the fact of age of the buyer and if he is in doubt as to the age he may not rely on the statement of the minor as to that question. Still it is not the policy of courts to permit a litigant to take advantage of his own wrong, but where it is the court's duty to protect a class of individuals as minors who must act under a legal disability, one can readily see how the court is inclined to put any loss due to an adult's dealing with a minor upon the more mature mind who is given the full capacity to contract at will.

The READERS CLEARING HOUSE

Questions And Answers



On Dealers' Problems

Copying Good Valve Oiling System

I have a customer with a Lexington car which uses an Anstead overhead valve type engine. This customer would like to install a lubricating system for the valves similar to that used on the Marmon 34, which delivers oil to each rocker arm through an oil pipe drilled with small holes.

I figured on connecting line from the pump on the left side. Would this interfere with lubrication for the other bearings by taking too much oil from the pump?—E. V. Brown, 3137 Magazine St., Louisville, Ky.

THIS is not the way it is done on the Marmon 34 and accordingly the matter should be studied somewhat, for the

for the valves you would be approximating the system used on the Marmon. On the other hand if you have to tap in right at the oil pump then the system should be watched very carefully for a while. If you can do this and use very small holes in the overhead pipe line and maintain oil pressure at the gage which is approximately what it was before, then you can figure that the bearings will still get plenty of oil.

Use Tractor Engine in Motor Boat

We have a motor boat in which a 490 Chevrolet engine is installed. After 10 to 15 hours running after bearings have been tightened I can hear all four connecting rods knocking. The bearings do not burn out, they simply get loose. The engine turns over about 1200 r.p.m. and drives the boat 16 miles per hour.—Elmer Wessel, Hannibal, Mo.

THE engine is not designed for this service and this applies in general to many automobile type engines. Although rated to give large horse power it is not intended that the full load should be carried for any great length of time. If you study marine engines you will find that the bearing sizes are much greater for the same horse power. You can probably get fair bearing life if you will not operate on wide open throttle. For heavy duty a tractor type engine such as Fordson would be better. You may get some relief if you use a little greater dip of the connecting rods in the oil troughs. Another possibility is to drill a hole in the upper half of the connecting rod bearing and countersink the hole so that oil will come in at this point. When engines such as Ford and Chevrolet are used for racing where we have wide open throttle operation for a considerable length of time, we find that pressure lubrication is usually resorted to in order to make the bearings stand up. This is another possibility.

EASY TIMING WITH CRANK

Valve timing is often given in degrees but the average mechanic has a hard time to use these degree measurements in his actual shop work. Is there some way you can tell by the movement of the starting crank how many degrees you are turning the engine? — Chicago Mechanic.

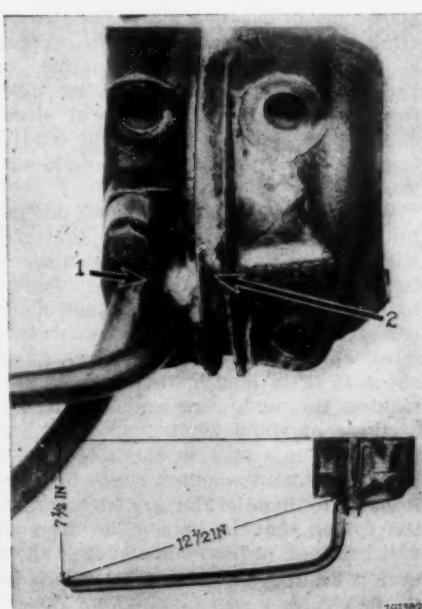
THERE is a simple way of using the starter crank to check valve timing if you know the timing in degrees. First put the engine on dead center. Then measure the length of the starting crank from the center of the crankshaft to the center of the handle. Next multiply the starter crank length by the number of degrees past dead center and then multiply again by .01745.

Suppose that we have a 9 in. starting crank and an inlet valve that opens 10 deg. past dead center. Multiplying 9 by 10 we get 90. Multiplying 90 by .01745 we get 1.57 in. This is a little over $1\frac{1}{2}$ in. Accordingly after setting the engine on dead center we notice where the starting crank handle comes on the front of the radiator and measure a little over $1\frac{1}{2}$ in. to the right. Then jarring the starting crank a little at a time we gradually turn the engine this extra distance of a little over $1\frac{1}{2}$ in. as measured at the starting crank handle.

RETURNING THE OIL

Some early Standard Buick engines leaked oil from the rear main bearings and we understand there is some way to correct this. Can you give us the information?—New York Repairman.

WE understand it was the Master Six and not the Standard which leaked at the rear main bearing. The method of correcting this is shown in the illustration. It applies to the 1924 cars. The back of the regular pressure pipe flange is filed off to get clearance for a drain pipe. This is indicated at arrow No. 1. Do not flatten out or dent the drain pipe at this point. The pipe must be soldered securely and must be air tight. At arrow No. 2 use a bell mouth drain hole in cap, using $\frac{1}{2}$ in. drill. Cut away bearing stock to permit tube to fit without distorting it.

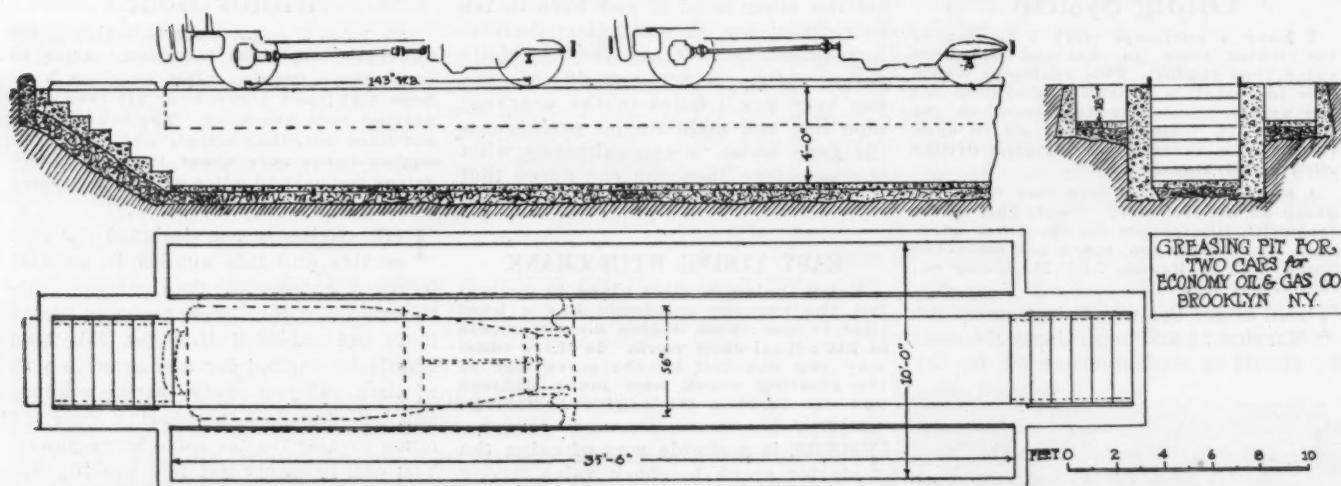


Buick rear bearing oil drain

Planning Your New Building

A Greasing Pit for Two Cars with Ground-Level Runway

By Tom Wilder



Considerable concrete could be saved by giving the runway walls a sort of I-beam section, broad top and bottom but only 4 or 5 in. thick between; but this would be partly lost on the more expensive forms. Drains should of course be provided

We are to build a greasing pit as soon as the weather permits. We would like to have this pit long enough for two cars with steps leading to pit on both ends. Also high enough from ground so as cars can be greased without stooping so low for the cups which cannot be reached from pit. We also plan to concrete our filling station ground. Kindly advise us on thickness of concrete and any other helpful information.—Economy Oil & Gas Co., Brooklyn, N. Y.

We are illustrating what we consider the best type of greasing pit for all around greasing service. The main reason why we think this is a good type is because it requires no incline and so occupies less space than a track equipped with an incline. A rack such as you request having space for two cars should be open at either end and if elevated this would require two inclines and make the length still greater.

We have made this rack long enough for two of the longest cars that one will usually have to handle, but there is no reason why it cannot be cut down to handle one long car and one short car or even two short cars. Since most of the cars handled will range about 15 ft. in length we would suggest making the rack long enough for two of these or about 30 ft.

The shallow pits on the side are 18 in. deep which is enough depth to make it easy to handle the grease cups on the spring shackles, etc. The deep pit will bring an ordinary man's eyes about even with the axle when he stands on its floor.

As a safeguard to keep cars from driving into the shallow pit, if that

would be possible, it might be well to raise the curb 4 to 6 inches.

We have suggested angle irons set in the concrete as a guard rail on the outside edges of the runways but any other scheme might be used.

Your concrete paving should be about 6 inches thick and squared off into sections of about 8 ft. square. It could be made as thin as 4 inches using 4 or 5 ft. squares but would give way under heavy trucks.

READERS CLEARING HOUSE

LEGAL QUESTIONS ANSWERED

By Wellington Gustin

COLLECTING AN OLD ACCOUNT

How can we collect an account for labor and material sold to a car owner if the account has accumulated from six months to two years? If this car should come in the garage again, can we hold same for account? Please give us some way to collect such accounts.—Horn Bros. Garage, Glascow, Kansas.

YOUR case is one of ordinary collection of an open account, since you have no lien to foreclose where you can take possession of the car to enforce same. You can demand payment of your account and if refused you can inform the customer that you will bring suit if account is not paid. Then if you cannot get a settlement you can start suit and obtain judgment. With a judgment you are able to levy on the car or whatever other property you are able to locate which debtor owns or in which he has an interest.

Now if the debtor has money in a bank or another owes him money or property all of which the debtor is liable to seclude or dispose of, a

creditor can usually under this belief and apprehension start suit by garnishment or attachment of the property in hands of the third party and tie same up so that it may not be disposed of pending outcome of the suit. In the same manner a car might be attached if the creditor has grounds to believe debtor might dispose of same or otherwise seclude or encumber it in order to defeat the claim or judgment of creditor.

These are matters, therefore, of what is the best and safest procedure and must rest on the facts in the case, the condition of the creditor, which you are or should be best in a position to determine.

OLD BUICK PISTON DATA

Should the model B37 Buick have the piston pins offset?—Jack Watts, Vandalia Garage, Vandalia, Mich.

THE B model Buick should not have the piston pins offset. The offset began in the C model.

Answers to Readers' Questions

Piston Pins Need to Be Lapped

The owner of a 1925 eight cylinder Hupmobile has had trouble on account of wrist pins becoming loose. The car has only been driven 13,000 miles and recently had oversize pins. After running 1,500 miles the knock began to come back. We expect to get this job in the near future and want your suggestions on methods to use so that we will be sure we do a good job. The owner says that an ordinary expansion reamer was used when the oversize pins were put in. We thought of using a spiral reamer. We are also thinking of installing oversize piston rings on all pistons because the owner says the car has no compression. The oil mileage is good, however, as it runs 500 miles on a quart of oil.—Henry R. Perkins, Haddonfield, N. J.

WHERE the piston pins fit directly in the cast iron of the piston it is necessary to make them a very good fit. If the holes are reamed large enough for the pins to go in they will soon wear oversize and a knock will result. The answer is that the holes should be reamed so that the pin is a very tight fit. It is then necessary to hold the pin in a fixture of some sort and lap the piston to the pin using oil. This is a laborious job and takes about four hours for a set of pistons, even when done by a man experienced in this sort of work. This will however, give a good fit and a surface which will not wear down rapidly. When the connecting rod has been installed the fit should be such that the rod will fall easily when the piston is held and the rod is extended horizontally.

Here it is necessary for the mechanic to have some experience and discretion in fitting, for if the pin is too tight it will burn out, and if too loose the knocking will soon start again. There is no object in using oversize piston rings as you would have to file the ends a great deal and then when the piston ring fits in the cylinder it would not have a good contact surface with the cylinder wall. If the cylinder has worn so badly that oversize rings can be used then the cylinder probably needs reconditioning, but we doubt if this is the case. The oil consumption is very good, in fact possibly too good. It might be well to check the oiling system by removing the bottom pan and forcing oil through the crankshaft and connecting rod bearings to see that it drips in about equal amount from all bearings.

LIKE NIAGARA RAPIDS

Would like to know something about the theory of turbulence.—A Mechanic.

A TURBULENT river or stream is one which flows violently and per-

haps has a rocky bottom so that the water leaps and jumps here and there in a very violent manner. Perhaps this will describe to you the theory of having turbulence govern the incoming fuel to the combustion chamber. The spark at the spark plug occurs at one particular place while the incoming fuel is spread all through the combustion chamber. We must remember however, that it comes into a space from which all of the exhaust gas has not been driven out. This means that there will necessarily be layers of gas, some of which is old and burnt and some of which is new and combustible. If these gases are being violently driven around when the spark occurs, it is quite likely that the spark will strike a combustible layer of gas and the firing of this gas will ignite the rest of the mixture. On the other hand if the fuel comes in slowly and there happens to be a pocket of dead gas around the spark we can figure that there is a possibility of the engine missing or at least of its taking more time for the weak combustion in the vicinity of the spark plug spreading the flame to the rest of the mixture.

SHOP KINKS IDEAS

That have been Found Useful

A CURE FOR BUTTER FINGERS

To assemble nuts or washers in confined spaces I use shellac, glue or gasket cement on the end of one finger, let the nut or washer stick to the finger and then easily put it on the bolt.—N. J. Vile, 54 Lenox Place, New Britain, Conn.



Readers of MOTOR AGE are invited to submit ideas that they have found useful in doing some particular service job in the shop in a better or quicker way. For each one published \$2.00 will be paid. Whenever possible the idea should be accompanied by a sketch or diagram from which a drawing can be made.

"Getting By" with Chamfered Rings

In the Buick shop where I work all mechanics round the top edge of the top ring and the bottom edge of the bottom ring to keep the new ring from hitting the part of the cylinder where a ridge has been worn due to ring travel. I claim this is wrong as the old ring is very sharp and does not cause a knock.

—New York Repairman.

WHERE the ring travel does not come out of the cylinder bore it is evident that there will be a slight ridge left and the depth of the ridge will depend on how long the engine is operated. If the old ring has been cutting the cylinder wall it will probably have the upper edge rounded off where it hits the end of the travel. The same will probably apply to the lower edge of the bottom ring. For this reason the method used by the mechanic probably prevents trouble and comebacks due to ring knock. While the edges of rings are very sharp in general, it may be that the two edges referred to are not quite so sharp. There is still another possibility and that is that in removing and replacing the piston and connecting rod assembly, the bearing fit may not be exactly the same and the whole piston may be allowed to come slightly higher or may be pulled slightly lower in the cylinder at the top or bottom dead center position. For this reason as a matter of precaution the method used by the mechanic is a good way of getting by with the job. We say "getting by" because the correct procedure would be to hone out the cylinders so that there are no ridges.

EXHAUSTS INTO A BARREL

I have a Deleo light plant which has the exhaust pipe running into a barrel which is buried below ground. The top of the barrel is about one foot under ground. Sometimes the engine does not start readily and I am wondering if there is danger of explosive gas being passed through the engine into the barrel and then suddenly fired. I am also wondering if this would cause a destructive explosion. The bottom of the barrel is open for draining.—Leslie Garage, Leslie, Mo.

WE do not believe you need have any fear of an explosion as the barrel is open to the air through an outlet pipe which extends upward. However, we believe that you need to check up on your exhaust system. Would recommend your removing the drain cap which is used in the exhaust pipe close to the engine. If you do this and you find the engine starts and runs better than it did before then it indicates that the pipe between the engine and the barrel is clogged up. Under these circumstances the best thing to do is to use a new pipe.

Clearing Up Electrical Troubles

High Resistance Burns Up Generators

I have had quite a lot of Ford generators come to the shop with burnt out armatures. In one of these I put in a new armature but it gets hot just as soon as it runs a few miles. It does not drag on the pole piece and motors easy and regular, and the brushes are set on neutral. This generator has burnt out two armatures in the last two or three months.—H. D. Hamiter, Monticello, S. C.

If the charging rate is not over 12 amp. it is probable that there is a poor connection in the charging circuit. We are showing a diagram which gives the charging circuit and also gives various points at which to test with a voltmeter. One terminal of the voltmeter should be connected to the frame of the car or to the cross piece on which the battery is grounded. This cross piece is indicated by the letter M. Other letters such as A. B. C. D. indicate points at which the other voltmeter terminal should be connected. Such tests are to be made while the engine and generator are running and while the charging current is 10 to 12 amp. The highest voltage reading should be at the cutout terminal of the generator which is indicated as A. Then as you progress in taking readings at points B, C, D, E, etc., the voltage should drop slightly until you get down to the insulated battery terminal. At this point you will notice there are two tests to be made, one at the battery post itself and one at the cable terminal which is on the outside of the post. If there is a noticeable difference here it shows poor contact and indicates that the terminal should be removed and cleaned. The same applies at the grounded terminal where J indicates the post and K a battery post terminal. In similar manner a reading should be taken at L. Here the voltage should be very low, in fact so low that you can hardly read it on an ordinary voltmeter. If there is as much as 1/10 of a volt drop at the ground connection with charging current flowing it means that the connection should be taken off and cleaned up. Another possibility of armature burning out is a poor connection inside the generator from the brush holder up to the terminal. This should also be checked up with a voltmeter if the commutator cover is removed and a reading taken at the insulated brush holder and also at the generator terminal. Where the greatest difference in voltage is found it means there is the greatest resistance which may be due to a poor connection. You say that the armature does not rub. A good test for this is to run current through the shunt field only and have no brushes on the armature and then

turn the armature to see if it turns easily. An armature which drags can easily be checked in this way when it may not seem to drag when just turned by hand with no current in the field winding.

CHECK IT ON A TEST BENCH

We have a series 19 Studebaker with Wagner generator. When driving about 10 miles an hour with lights on it charges O. K. When going at the rate of 20 miles per hour it discharges. Without the lights turned on it will not discharge until a rate of 40 miles per hour is reached. Have tried a different ammeter and put in rewound armature, new brushes, and tested brush holder and field coils, but found them all O. K. The wire connections are also O. K.—Walter Paschel, Box 111, Suring, Wis.

YOU do not tell how much charging current you get when the lights are not turned on. It is characteristic of some third brush generators to drop their charging rate at high speed and

The diagram illustrates a basic electrical circuit. On the left, a rectangular box contains two parallel horizontal branches. The top branch has a light bulb labeled 'H' in series with a switch labeled 'G'. The bottom branch has a switch labeled 'J' in series with a switch labeled 'K'. A vertical line labeled 'L' connects the two branches. From the bottom of branch 'L', a wire labeled 'M' extends downwards to a ground symbol. From the top of branch 'L', a wire labeled 'F' extends to a switch labeled 'F'. From the right side of switch 'F', a wire labeled 'E' extends to a vertical component labeled 'B'. From the top of component 'B', a wire labeled 'A' extends to a rectangular component labeled 'C', which is labeled 'AMMETER'. The bottom of component 'B' is connected to the ground symbol. The right side of component 'C' is connected to the ground symbol.

When lamps or generator burn out check voltage at points shown

some will drop it down to zero. If the charging current is not over 10 you might try moving the third brush to increase it to 12 at the maximum. This drooping effect in the charging curve is due somewhat to the third brush short circuiting some of the commutator segments. We would accordingly suggest beveling the brush so as to narrow the contact surface.

Another possibility is that the bearings are somewhat worn so that there is possibility of the armature shaking or revolving unsteadily at certain speeds. This might make it difficult for the third brush to maintain good contact at high speeds. You could check this by testing the generator on a test bench and holding the third brush down with the fingers at speeds where the trouble is experienced. You do not say anything about testing it on a test bench and if you did this you would probably find out something that you would not run across merely checking on the car.

Keep It for Running the Toys

I have a small transformer used for operating electrical toys. This has voltage varying from $2\frac{1}{2}$ to $27\frac{1}{2}$ volts by $\frac{1}{2}$ volt steps. Could I use this for charging batteries? It works on 60 cycle current and also works on 25 cycle current but smells and gets rather warm on the latter current.—John E. Feulner, High Lake, West Chicago, Ill.

THE transformer only is not suitable for charging batteries. It takes your high voltage current and steps it down to low voltage, but it is still alternating current. This means that for an instant the current flows in such a direction as to charge the battery, but the next instant the current reverses and discharges the battery. You would actually find that the battery would run down while you were trying to charge it with a device of this sort. In a bulb type rectifier there is a transformer

used to get the right voltage, but the bulb is then used to prevent the discharged current flowing. We accordingly feel that it is better to buy one of the standard charging devices on the market rather than try to make one. The reason that the transformer smells and gets too warm on 25 cycles is that it is designed for 60 cycles. The slower the frequency the less the transformer is able to resist the flow of alternating current. If you would go a step further and connect the transformer to direct current it would burn up almost instantly.

ALL TIMED ALIKE

What is the ignition timing on all Buick cars from 1918 to 1927.—New York Benjamin.

A BUICK car can be timed with the ignition in the retard position so that the interrupter points just begin to open at 7 deg. after top dead center. On the 1927 cars it is also possible to check the timing with the spark lever advanced so that in this position the interrupter points just begin to separate 17 deg. before top dead center.

Clearing Up Electrical Troubles

Magneto Armature Test Using Battery

Would like to have diagram showing method of testing high tension magneto armature with battery current. At present I desire to make such a test on an American Bosch DU-4 armature, also on the armature of a German Bosch D-6 with battery attachment.—Milton Young, Hampton Court, Lexington, Ky.

IN testing the magneto armature the interrupter is left off and the central screw which normally retains the interrupter is replaced as it acts as a terminal for one end of the primary winding. The other end of the primary is grounded. Before starting to test take a piece of fairly stiff wire and twist it around the armature shaft and bend it over toward the high tension slip ring to serve as a spark gap. Then connect an interrupter and 6-volt battery in series with the primary as shown. Although there is a condenser in the armature it is not properly connected for this test. This accounts for using the extra condenser. If a test is made without the outside condenser a fair spark will be obtained which will jump perhaps $\frac{1}{2}$ in. if the armature is in good condition. This is due to the fact that the condenser in the armature does have some effect. However, with the extra condenser added at the interrupter which is being used for testing it will be found that the spark will jump a little farther and will have more red color or flame to it. If the interrupter used for testing is motor driven it is possible to run this test for a half-hour or so to see if the coil stands up when warm. If a double slip ring armature is being tested a special gap should be used with two breaks in it and the piece of metal between the two gaps should be grounded.

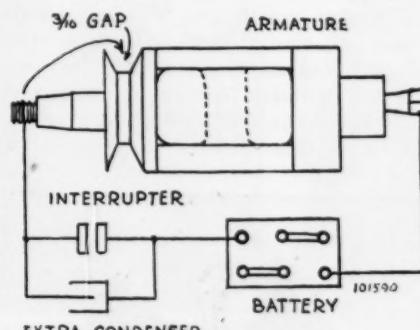
BULBS BURN OUT TOO FREQUENTLY

We have a new model Hudson coach that burns out two or three headlight bulbs a week. Generally the bulb on the left side is the one to burn out. The bulbs used are the same that we have wholesaled for years and never before have we had this kind of trouble.—Rodewald Sales House, Preston, Iowa.

THE burning out of bulbs at such frequent intervals is most likely due to either an extremely high charging rate of the generator or to a loose connection in the wiring of the car. It would be our suggestion that you take a voltmeter and test between the generator and the frame and see what the voltage is there. It should not be over 8 volts. The test should then be repeated at the battery and should not show a voltage in excess of $7\frac{1}{2}$ when

the generator is charging. If the reading at the generator is in excess of 8 volts it indicates that there is a high resistance or poor connection somewhere in the circuit between the generator and the battery. A common location for trouble of that kind is at the battery terminal where corrosion sometimes sets in and even though the terminals may be mechanically tight the circuit is electrically poor.

Another place where trouble frequently develops is where the ground connection is made from the battery to the frame. Here rust sometimes sets in or it may be that the frame was not properly cleaned and paint may be under the terminal. This, of course, will interfere with the free flow of the current. One way of scientifically running down trouble of this kind is to start at the battery and take the



Circuits for armature testing

voltage reading between the positive terminal of the battery and the frame of the car. Then repeat this test at the starting switch. Next take the same reading from the ammeter to the frame. This should be taken on each terminal of the ammeter as it is possible that a poor connection may exist on the inside of the ammeter and you may find high voltage on the side of the ammeter that is toward the generator. When checking up in this way if you find that the reading at one point is very similar to the reading at the battery, that is, not varying more than a quarter of a volt and at the next point the reading is considerably higher you can be sure that the bad connection is between the two points just tested. Then you can usually locate the trouble visually. The reason that the trouble concentrates on the left headlight is because the current goes to the left lamp first and there is probably enough extra resistance between the left headlight and the right headlight to hold the voltage down slightly and thus give the right headlight longer life.

Full Advance Needed at High Speed

One of our customers has a 1926 Chevrolet coupe which will only do 45 miles per hour. He gets 25 miles to the gallon and the operation is perfect in every respect except for maximum speed. We have checked timing, valves and compression, but cannot find anything that accounts for this condition.—Pennsylvania Repairman.

WE would suggest your checking the spark advance to make sure that the movement of the lever on the steering column is transmitted to the distributor. Would suggest your removing the distributor cap and perhaps disconnecting the rod which runs to the advance arm on the distributor. Then move the distributor arm back and forth and see how much movement takes place. Then connect up the spark advance rod and see if the lever on the steering wheel will give the lever on the distributor the full amount of movement of which it is capable. In checking the ignition timing the piston in the No. 1 cylinder should be put on upper dead center, firing position. At this instant the interrupter points should be just ready to separate with the spark lever in the retard position. Turning on the ignition switch and moving the spark lever $\frac{1}{4}$ in. you should see that the interrupter points break the circuit. This is best checked by watching the ammeter when it will be seen that the ammeter hand drops back to zero.

FIGURE VOLTAGE LOSS

In running wire from a storage battery a distance of 50 or 75 ft. is there any loss of current? I have in mind running wires from the storage battery which is in a car in a garage to the house where a radio set is used.—G. J. Blaneett, 127 Russel Ave., Susanville, Calif.

THERE is always a loss, but we usually figure it is a loss of voltage. This is on the assumption that the current is constant. If No. 10 wire is used there is a resistance of 1 ohm for each thousand feet. On a 50 ft. stretch with wires used for the current going and coming we would have 100 ft. of wire used which would have a resistance of .1 ohm. The ordinary 5 tube radio set uses about 1.25 amperes and multiplying the current by the resistance we get .125 volts as the loss in electrical pressure. In the ordinary set this would be satisfactory as it would merely mean using less resistance in the rheostat. If you get the wire too small however, you will have so much loss that adjusting the rheostat higher will not make up for it.

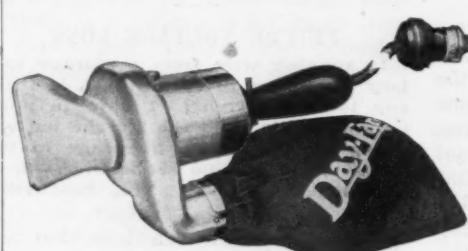
NEW SHOP EQUIPMENT

New U. S. Air Compressors

TO meet the demand of service stations and garages for a completely automatic air compressor which will supply a volume of air at high pressure, the U. S. Air Compressor Co., Cleveland, O., has added two new compressor units to its line. One of these, the LB-4, is a two-stage unit which furnishes a constant tank pressure of 165 to 200 lb. and has a displacement of 12 cubic feet per minute. The other model, LB-6, is a single-stage twin cylinder unit, furnishing constant tank pressure of 90 to 125 lb. and has a displacement of 16 cubic feet per minute. These units are equipped with 3 h. p. motors and mounted on 60 gallon tanks. These compressors are designed specially to meet the demand for more air for inflation of balloon tires, spraying oil on springs, cleaning engines, operating air-lift grease racks and the like.

Handy-Vac Cleaner

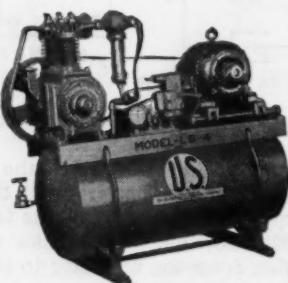
HANDY-VAC is a new portable vacuum cleaner especially designed for cleaning the interior of closed automobiles and manufactured by the Day-Fan Electric Co., Dayton, O. The machine is small enough to be easily carried in one hand and operated in places that would be hard to reach with a large cleaner. It is equipped with 15 ft. of cord and is regularly furnished for 110 volt alternating or direct current.



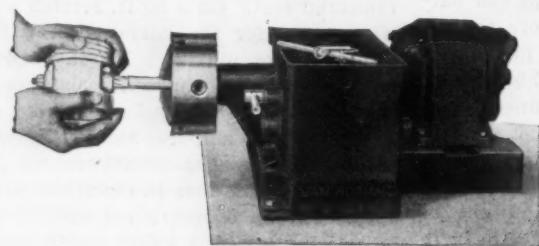
Handy-Vac. cleaner

Van Norman Reamo

PISTON and connecting rod reaming may be done quickly and accurately with the new Van Norman two speed Reamo machine. The Reamo machine is driven by an electric motor and is equipped with a four jaw 4 in. universal chuck. All reamers from $\frac{1}{4}$ in. to $1\frac{1}{2}$ in. in diameter can be held in the squared end and reamers up to 1 in. in diameter can be held, if desired, by gripping on the shank rather than the square. Reamers of various sizes can be operated at various speeds. The low speed operates at 33 r.p.m. and the high speed at 66 r.p.m. A convenient lever placed in front of the operator can be used to change the speed quickly even while the machine is running. The Reamo machine is bolted to a bench and has a foot switch directly underneath. It is claimed that reaming jobs can be done in one fourth the time required by hand and this is a great help to the shop operating on flat rate. The two speed machine equipped with regular motor switch and 110 volt single phase A.C. motor is priced at \$125. The single speed machine with 110 volt motor but without foot switch is priced at \$98.50. The foot switch may be obtained for this machine for \$6.50 extra.



U. S. Model LB-4 air compressor unit



Van Norman piston and connecting rod reaming machine, "Reamo"



Spin-O valve cleaner

A New Paint Sprayer

A NEW paint spray gun known as Type E has been developed by The Alexander Milburn Co., Baltimore, Md. This gun has been designed as a triple purpose instrument which may be used either as a siphon-feed pressure-feed or gravity-feed spray. It is quickly adaptable to use in any one of these ways. A multiple head adjustment permits either a flat, fan spray in either horizontal or vertical position, or round spray. The atomization is said to be so fine that "orange peel" effect is eliminated. A very fine adjustment permits it to be used for touching up, shading and high lighting.

Spin-O Valve Stem Cleaner

SPIN-O is a small device designed to automatically clean the valve stem just below the head and keep it free from accumulations of carbon and dirt. This little device fits over the valve stem between the valve head and the guide and has two wings which are said to cause it to spin rapidly as long as the valve is operating. The manufacturer claims it will eliminate the sticking of valves caused by the formation of carbon on the stem. This device is made by the Spin-O Co., Youngstown, O., and the price is \$1.00 per set of two cleaners.

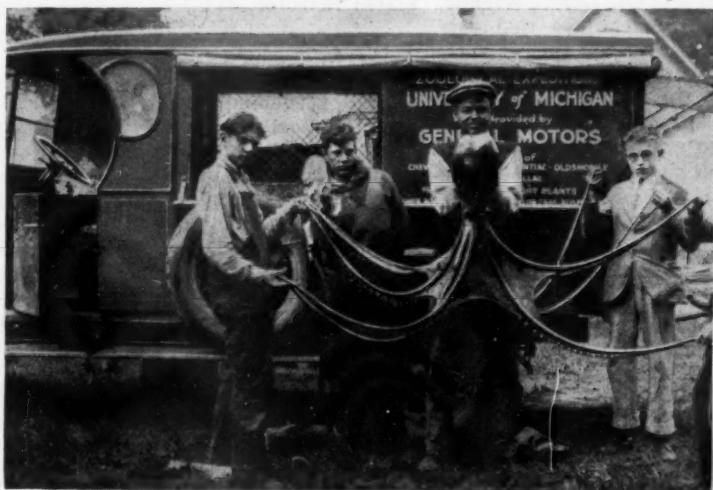


Alexander Milburn Type E paint spray gun

PICTURES from MANY PLACES



THE STAND OF ROWLANDS GARAGES, LTD., IN THE CEYLON MOTOR SHOW. It will be noticed that of the seven cars handled by this concern one, the Chandler, is American



CHEVROLET TRUCK PROVIDED BY GENERAL MOTORS in which Prof. Carl L. Hubbs, Curator of Fishes of the University of Michigan Zoological Museum, recently made a 11,156 mile fish collecting trip. Prof. Hubbs is holding the body of a giant octopus captured on the coast of Washington



CHICAGO'S FAMOUS MOTOR THOROUGHFARE. "Boul. Mich." looking north just north of the boulevard link bridge with Lake Michigan in the distance



THE KIWANIS CLUB OF MARIETTA, OHIO suggests that if more towns and cities would provide signs like these, tourists would be enabled to find and see many places of interest, historic and otherwise, which now are passed hurriedly by. The signs are of cast iron, bronze finished, on concrete posts. The street sign takes the form of the old fort built on the original town site

NEW AUTOMOTIVE DEVICES

Kari-Keen Luggage Carrier

THE Kari-Keen carrier is a combination trunk and luggage rack for the rear of the car made by The Lier Mfg. Co., Sioux City, Ia. In folded position this carrier is a regulation trunk 12x18x36 in. When it is opened by lowering the back section it forms a substantial parcel compartment 30x36 in. It is designed especially for the use of tourists and farmers. In extended position it will carry a number of milk cans or a large quantity of produce. It is also useful for light delivery work. A spare tire may be carried on the back side and does not have to be removed when the luggage compartment is extended.

Vanity and Smoking Cases

SMOKING and vanity cases are new products of the Grand Rapids Metalcraft Corp., Grand Rapids, Mich., which are being manufactured as original equipment for car manufacturers. These cases may be set in flush with the rear of the back seat or on the sides and may be finished as desired in walnut, mahogany, ebony or other finish. The trimmings are satin finished silver. The vanity case contains a notebook and mirror with the interior finished in velour and velvet. The smoking case has an ash receiver and match holder.



Smoking case made by Grand Rapids Metalcraft Corp.



Vanity case made by Grand Rapids Metalcraft Corp.

Kant Stick Battery Tester

KANT Stick is the name of a new battery tester of the hydrometer type made by the Scranton Glass Instrument Co. of Scranton, Pa. In this instrument the float is of pendulum style and consequently remains always upright. The barrel of heavy glass is considerably wider at the top than at the bottom, a feature which eliminates sticking of the float. Soft rubber bumpers have been placed at both top and bottom to prevent breakage of the float and a square rubber collar near the lower end of the barrel keeps the instrument from rolling. Price \$1.00.

Marvel Spring Control

A NEW spring control device known as the Marvel is being marketed by the Marvel Products Co., Lorain Avenue, Cleveland, O. It is claimed that this device, which fits over the spring, rolls and grips, controlling both shock and rebound within the spring itself. It is said that the rolling action of the control causes it to grip the spring tighter. The illustration shows how this action is accomplished. It is made in five sizes to fit all cars, and prices are from \$3.80 to \$4.60.



Kari-Keen combination trunk and luggage carrier



Kant Stick battery tester

S. & M. Oval-Lite

AN interesting development in automotive auxiliary illumination is the S & M Oval-Lite, announced by the S & M Lamp Company, of Los Angeles. This light is designed to illuminate the curves on the highways and darkened street intersections in the city with a sweeping flood of light before the car is turned. This is made possible by the exceptional spread of the beam of light, which is produced by an elliptical paraboloid reflector, and distributed by a scientifically correct lens. The Oval-Lite is clamped on the headlight tie rods or frame. It is strictly a stationary lamp. There are no mechanical or hand-operated controls of any character. With silver-plated reflector the Oval-Lite lists at \$13 and with gold-plated reflector, \$14.

Cleveland Shock Absorber

THE Cleveland shock absorber is scientifically designed and built to control the rebound of car springs, it is stated. It is a product of the Cleveland Shock Absorber Co., Cleveland, Ohio, and the spring action is described as not being deadened, but gradually controlled, being eased back into their normal position without jerking or jarring. All working parts of this device are entirely enclosed in a housing and the frictional control is adjustable to suit the weight and springs of each car. Installation is made by using the holes already drilled in the chassis frame. Standard fittings to fit all makes of cars are supplied. Price \$15 per set of two, \$30 for set of four.



Marvel spring control



S. & M. Oval-Lite

TRADE EXCEEDS EXPECTATIONS

Business Better Than Many Had Anticipated

Ford Production Is Marking Time Pending Plans for Model Changes

NEW YORK, March 16.—Automobile business this month, aided by fine weather in most parts of the country, is better than most persons in the industry earlier in the year expected it would be. A large proportion of the factories have swung into capacity production, the outstanding exception being Ford, which is marking time pending the introduction of changed models.

Although the output total for the industry is thus adversely affected, for the companies, exclusive of Ford business, is well above the level of a year ago. Territorial influences are seen, and southern sales are not as satisfactory as the volume in other parts of the country.

The slowing up in the south has increased delinquencies and repossessions in time-sales transactions, but not to a serious extent. For the national financing companies, in fact, the average of payment on time is at the highest point for the season in recent years. The winter months normally see a slight percentage rise in repossessions, but this year except in the south, the increase has been less. On the whole, the manner in which southern buyers are paying for their cars and new purchasers are coming into the market has been the subject of considerable gratification.

Larger Velie Shipments

MOLINE, Ill., March 12.—The Velie Motors Corp. reports that its February shipments were 61.7 per cent greater than February of last year. This follows an increase in November, December and January amounting to 49 per cent in excess of business done the same months of the preceding year.

New Willys-Overland Dealers

TOLEDO, O., March 14.—The Willys-Overland, Inc., announces the appointment of 96 new dealers between February 15 and March 1. Nearly all parts of the United States are represented in this new list.

New Models Added to the Prices and Weights Tables for MOTOR AGE March 17 Issue

Make	Model	Body Style	Old Price	New Price
Falcon Knight		Brougham	New Model	\$ 995
Falcon Knight		Sedan	New Model	1095

Territory Scores Record

CHICAGO, March 14.—Willys-Overland dealers under the Overland Motor Company, distributors here for the Chicago territory, followed their record of \$5,011,875 sales during the Chicago nation show by smashing all previous February business records. According to G. V. Orr, president of the Overland Motor Co., deliveries to dealers in February exceeded those of February 1926 by 61 per cent, making February, 1926, the best second month in the Overland Motor Company's 18 years of activity. In a bulletin to dealers Mr. Orr predicts that 1927 should prove the most profitable year they have ever enjoyed.

Mr. Orr announces the appointment of the Zimmerman Motor Co., Whiting, Ind., as Willys-Knight and Whippet dealers. This company has been handling Ford.

Price Range of G. M. Line

DETROIT, March 14.—With the introduction of six models by LaSalle, the companion-car to Cadillac, at prices which range between Buick and Cadillac, the General Motors line of cars now includes 72 different models with a price range, f. o. b. at the factories, as follows:

Chevrolet, 7 models, from \$525 to \$745. Pontiac, 6 models, from \$775 to \$975. Oldsmobile, 11 models, \$875 to \$1190. Oakland, 7 models, from \$1025 to \$1295.

Buick, 18 models, from \$1195 to \$1995. LaSalle, 6 models, from \$2495 to \$2685. Cadillac, 17 models, from \$2995 to \$4350.

In addition Cadillac offers many body styles and types with bodies by Fisher and Fleetwood, making a total of 50 body styles with 500 different color and upholstery combinations at prices ranging up to \$9,000.

G. M. Sales Up in February

DETROIT, March 14.—Car and truck sales by General Motors division dealers to users in February totaled 102,025, compared with 64,971 in February, 1926, and 39,579 in February, 1925, according to the monthly statement of sales. These sales in January, 1927, amounted to 81,010. Division sales to dealers in February amounted to 124,426, compared with 99,367 in January, 91,313 in February, 1926, and 49,146 in February, 1925.

Chrysler Sales Were 170,392 Cars in 1926

Annual Report Shows Earnings of \$15,448,586 After Provision for Federal Taxes

DETROIT, March 14.—Chrysler Corporation directors have declared the regular \$8 annual dividend on the preferred stock of the company, payable \$2 quarterly on March 31, June 30, September 30, 1927, and January 3, 1928. The regular quarterly dividend of 75 cents a share on the common stock was declared for the first quarter of 1927.

Chrysler Corporation 1926 annual report showed net earnings of \$15,448,586.84 after provision for Federal taxes. After providing for preferred stock dividend, this leaves net earnings available for the common stock for the year of \$13,722,998.84.

Earnings for the fourth quarter of 1926, after provision for Federal income taxes were \$3,728,774.78, or \$1.22 a share on the common stock, compared with 90 cents a share on the common stock in the fourth quarter of 1925.

Car sales for 1926 were 170,392 cars compared with 137,668 for the previous year. Fourth quarter, 1926 car sales were 50,964 compared with 30,370 for the corresponding quarter of 1925.

The Dec. 31, 1926, balance sheet shows \$28,314,772.55 in net current assets with cash and marketable securities more than sufficient to pay all liabilities, an improvement in the net working capital position of the company, compared with last year, of \$293,641.28. During the year, the corporation declared \$9,846,828 in dividends; expended \$8,551,768.10 on plant facilities; retired \$1,024,000 of funded debt, and met preferred stock sinking fund requirements of \$812,124 and wrote off all expenses incidental to creating the three new lines of cars introduced.

To Consider Business Problems

WASHINGTON, March 14.—Under the general heading, "The New Business Era," problems of current interest to American business will be considered at the 15th annual meeting of the Chamber of Commerce of the United States to be held at Washington, May 3 to 5.

Named Weaver Service Engineer

SPRINGFIELD, Ill., March 14.—G. W. Benedict has been appointed service engineer by the Weaver Manufacturing Company, manufacturers of garage and shop equipment, to further develop the extensive service promotion program which the Weaver company inaugurated last year with the building of the Weaver Laboratory Garage.

Olds Sales Gain in 1926 Greatest of G.M. Units

Corporation's Report for Last Year Gives Figures for Car Divisions

NEW YORK, March 12.—General Motors pamphlet report for the year 1926, just issued, shows new records in number of cars manufactured and sold, not only for the corporation as a whole, but for each of the car manufacturing divisions. The statement of earnings and balance sheet position in the report is identical with the preliminary statement issued previously.

Hitherto unpublished, however, are the figures of sales by divisions, which follow:

	1926	1925	1924
Buick	280,000	208,575	166,952
Cadillac	27,489	22,773	17,905
Chevrolet	620,364	466,485	295,456
Oakland	58,537	45,380	36,512
Pontiac	75,836	—	—
Oldsmobile	59,536	43,935	45,728
Commercial Cars	—	—	—
Chevrolet	111,781	45,824	19,277
Pontiac	1,298	—	—
Totals:	—	—	—
Passenger	1,121,771	787,148	562,553
Commercial	113,079	45,824	19,277
Miscellaneous*	—	2,930	5,511
Grand Total	1,234,850	835,902	587,341

*Miscellaneous includes G. M. C. Trucks to end of April, 1925, when G. M. C. Truck Division was transferred to Yellow Truck & Coach Mfg. Co., the operations of which are not consolidated in the accounts of General Motors Corp.; also cars, trucks and tractors not now manufactured.

A notable feature of the sales by divisions is that while in units the remarkable gain by Chevrolet exceeded the total of all others, each of the makes showed a striking percentage gain over 1925.

The Oldsmobile was the leader, with an increase of 35 per cent; Buick closely followed, with 34 per cent; then came Chevrolet, 33 per cent; Oakland, 29 per cent; and Cadillac, 21 per cent. The corporation's new car, the Pontiac, exceeded Oldsmobile, Oakland and Cadillac in unit sales, but as it was only put into production in 1926 there is no basis for comparison with previous years.

Adhere to Stocking Policy

Commenting on the corporation's dollar volume of sales in 1926, which amounted to \$1,058,153,333, Alfred P. Sloan, Jr., president, says:

"Sales for the year approximate the aggregate sales for the entire first ten years in the corporation's history, from 1909 to 1918, inclusive. Stocks of cars in the hands of the corporation, its dealers and distributors at the close of the year were normal. The policy of the corporation regarding stocking dealers with cars has been rigidly adhered to, with profit both to the corporation's dealer organization and to the corporation itself."

Frolic in Detroit Awarded Henshaw Group for Outstanding Accomplishments



Outstanding accomplishment in their various departments in the Henshaw Motor Co., Dodge Brothers dealers in Boston, was duly rewarded when this group of Henshaw Sales and Service men were given a fine round of entertainment at the Dodge Brothers factory in Detroit. The trip to and from Detroit was made in a private car. In Detroit besides inspection of the factories there were two testimonial luncheons attended by plant officials, a banquet and a theater party.

Reading from left to right in the back row are: D. Bailey, A. Reed, L. McNeil, R. E. Booth, George Whitehouse, C. W. Burnham, A. D. Seibert, M. El Condinho. In the front row, left to right, are: W. H. Waterfall, F. W. Smith, E. L. Kane, J. R. Barrett, A. K. King, J. L. Chisholm, J. E. Johnson, F. J. Gosselin, Frank Murray, T. Harris and Wm. Edstrom.

Reviewing the year in foreign business, the report says:

"Five assembly plants were installed in Australia, at Adelaide, Brisbane, Melbourne, Perth and Sydney; an assembly plant was installed at Montevideo, Uruguay; a warehousing operation was started in Alexandria, Egypt; and new assembly operations have been authorized at Osaka, Japan; Batavia, Java; and Stockholm, Sweden."

Sales of cars and trucks overseas by the Export Organization of General Motors follow:

Year Ended	Cars and Trucks Number of Units	Value Wholesale
December 31	21,872	\$19,875,015
1923	45,000	39,193,869
1924	64,845	50,929,322
1925	100,894	77,109,696
1926	118,791	98,156,088

With regard to the Yellow Truck & Coach Mfg. Co., the report says: "The earnings of the company for the year have been unsatisfactory. This resulted from several different causes—principally of revamping and reconstructing the plants and products, the accomplishment of which will take more or less time."

Ethyl Gasoline Corp. is referred to as follows: "Reference was made in the previous report to the organization of this corporation and a statement was set forth as to its future activities and possibilities. During the year very substantial progress has been made. It is believed that within another year Ethyl gasoline will be available throughout practically every part of the United States and Canada and in many foreign countries. While this institution has not contributed to the earnings of General Motors Corp. as yet, due to its being in a development stage, present in-

dications are that it will come into earning power during the year 1927. The Ethyl Gasoline Corp. is owned jointly by the Standard Oil Co. of New Jersey and by General Motors Corp., each having a one-half interest."

Oakland Appointments

DALLAS, Texas, March 14.—Appointment of J. B. Durkee as Dallas retail sales manager for Oakland and Pontiac cars, and G. Gamble, district manager for the Dallas territory factory branch, was announced by E. M. Lubeck, assistant general sales manager for the Oakland Motor Car Company. Mr. Gamble comes to Dallas from the Butte, Mont., district. He succeeds L. J. Brookling, who recently resigned. Mr. Durkee comes to Dallas from the Kansas City district office.

Barr Is Export Manager

CLEVELAND, O., March 14.—John F. Barr of New York has joined the Chain Products Company of Cleveland as export manager for this organization and its associated industries, the Van Dorn Electric Tool Company and Van Dorn & Dutton Company, of Cleveland.

George C. Wiseman, of Cleveland, has been appointed district representative of the new Hodell Tire Chain Sales and Service Station by the Chain Products Company.

Has Locomobile for State

MILWAUKEE, March 12.—Arthur J. Lusty, for several years distributor of the Stearns-Knight in Milwaukee and the greater part of Wisconsin, has been appointed distributor of the Locomobile for the entire state and will handle this line exclusively.

Little Major Legislation Affecting Automotive Industry Passed by Congress

WASHINGTON, March 14.—Little major legislation of direct interest to the automobile industry was enacted into law during the 69th Congress just closed. From a matter of dollars the \$29,000,000 tax refund, of illegally collected excise taxes on parts, etc., was the largest bill of interest to the industry, but because of the "bond rider" making it mandatory for manufacturers to file a bond to insure return of the taxes to the ultimate consumer, the bill is of little value, as few manufacturers are expected to file applications, for the reason that if the money cannot be paid back to the consumer, it must go back to the treasury.

Other legislation, of interest, either because of its passage, or lack of passage, is as follows:

An increase in the annual appropriation of the U. S. Bureau of Foreign and Domestic Commerce of \$65,000 was voted, making the total sum \$120,000 available. This was done on plea of H. H. Rice, director of the National Automobile Chamber of Commerce, who

appeared before the House Appropriation Committee in behalf of the measure, on the ground that increased appropriations would enable U. S. manufacturers, especially automobile manufacturers, to get more business abroad.

The House Ways and Means Committee was authorized to meet in October to formulate a tax program, which will be presented to the 70th Congress meeting in December.

A sum of \$15,000 was voted to enable American delegates to attend the next Pan-American Congress of Highways, scheduled to meet in Brazil.

Among the bills that failed, are included: The Du Pont highway bill, which would erect a super-high, 300 feet wide, from the Atlantic to the Pacific; the Cameron-McLeod highway bill, which would build a similar highway from Canada to Panama; the Reed-Bachrach bill, providing for interstate highway bus and truck regulation, and the various Democrats' bills for tax reduction.

Expand Body Factory

INDIANAPOLIS, March 14.—Millsbaugh and Irish, body builders of this city, have bought the main plant of the old Mid-West Engine Company and will employ the new facilities to increase production of automobile bodies here. The company in an expansion plan recently set up a branch plant in Detroit, and the added facilities acquired here will permit a greatly increased local production.

Hartz Signs for May 30 Race

INDIANAPOLIS, Ind., March 14.—Harry Hartz, who last year placed second in the international motor sweepstakes at the Indianapolis Motor Speedway, and who finished the year as the American Automobile Association speedway driving champion, is the first driver to make an entry for this year's sweepstakes—popularly called the 500-mile race—which will be run on May 30.

New American Chain Line

NEW YORK, March 14.—The American Chain Co. has acquired the patents of the Rawlings Co. of America and will manufacture the Rawlings line of window lifts. Carl Rose, formerly president of the Rawlings Co., has been made manager of the window lift division of the American Chain and is getting out improved new models which are featured by one hand control.

This new move by the American Chain followed closely the acquisition of the patents in passenger car rights of the Rubber Shock Insulator Co. The American Chain has started manufac-

ture and sale of this product under Wilder Gutterson, formerly with the Rubber Shock Insulator Co.

Kissel on Normal Schedule

HARTFORD, Wis., March 12.—The Kissel factories have resumed normal production and are back on a five-and-a-half day week working schedule, says an announcement from the Kissel Motor Car Co. A decided upward trend of orders received is accepted by Kissel as an indication that dealers are preparing for an active spring business. Enough orders have been booked, it is said, to assure capacity operations at least until summer.

Display 14 Makes

JACKSONVILLE, Ill., March 12.—The Jacksonville Automotive Dealers' Association sponsored the annual show which was held in Auto Inn with 14 participating dealers. Thirteen makes of cars were shown and attendance during the three days gave evidence of a keen interest in the trade this season.

To Distribute Falcon

DETROIT, March 14.—The Daye W. Compton Co. have been appointed Falcon distributors for Detroit and adjoining territory.

Large Nash Shipment

KENOSHA, Wis., March 12.—Nash Motors Company reports shipment on March 1 of 693 automobiles, four solid trainloads, to San Francisco and Los Angeles.

New Attendance Mark For Los Angeles Show

More Than 100,000 Persons Throng Six Tents That House 425 Vehicles

LOS ANGELES.—More than 100,000 persons attended the fourteenth annual Los Angeles Automobile Show, which has just closed, after a week's showing. This establishes a new mark for local automobile exhibitions and is believed to be the largest attendance on record in the West. The fact that so many people thronged the six big tents which housed the 425 cars and trucks on display during a week which had several days of bad weather offers striking testimony to the interest manifest by the buying public in the latest offerings in the motor car world.

Virtually all of the distributors and dealers exhibiting, 79 in all, reported an excellent response in the shape of actual sales.

The Los Angeles show is declared to have been the largest automobile show in the history of the industry, both from the standpoint of space occupied and in the number of cars exhibited. The enclosures embraced more than 172,000 square feet of floor space. Each tent was beautified by a different color scheme, brilliant and ornate. Gorgeous hangings of cerise, orange, yellow, blue, violet and orchid were arranged as a background for the cars.

One of the features of the show was the exhibit occupying one entire tent of the combined A. E. A. jobbers of Los Angeles, who displayed the latest shop equipment.

Lansing Durant Plant Runs

LANSING, March 12.—The Lansing plant of the Durant Motors Corporation is resuming production activities and it is expected that by March 15 the local unit will be producing approximately 200 jobs daily. Materials necessary for Star car assembly are being shipped to Lansing from various Durant plants where units are manufactured.

Trico Fuse Appointment

MILWAUKEE, March 14.—Trico Fuse Mfg. Co. has appointed the United Autoware Co., 17 W. 60th St., New York City, eastern representatives for Trico auto fuses and auto fuse assortment display cases.

Elf Takes on Marmon

CLEVELAND, O., March 12.—The Elf Motor Company, largest Ford dealer in Cleveland, has announced acquisition of the Marmon distributing franchise for Northeastern Ohio. The company's building at 70th Street and Euclid will be occupied in its entirety by the Marmon business.

Stroke of Paralysis Is Fatal to John W. Murray

Another Pioneer of Motor Industry Removed by Death in Detroit

DETROIT, March 11.—With the death, today, of John W. Murray, chairman of the board of directors of the J. W. Murray Manufacturing Co., and member of the executive committee of the Murray Corporation of America, there was removed from the industry another of its pioneers and well known executives. Mr. Murray was 69 years old and passed away at the family residence, where he had been confined since Feb. 26, when he suffered a stroke of paralysis. He had been active in his business up until the day he was taken ill.

Mr. Murray was born in Washtenaw county, near Ann Arbor, Mich., April 20, 1858, and moved with his parents to Saginaw, where he was educated in the Saginaw public schools. At the age of 20 years, with his brother Andrew, he opened a small machine shop and foundry at Cheboygan, Mich. In 1885 he was married to Miss Harriett Elizabeth Rappin of Cheboygan, and soon after returned to Saginaw, where he resided until 1890, when he was made superintendent of the Jenison Manufacturing Co. of Jenison, Mich., manufacturers of railroad appliances. He remained there until 1894, when he moved to Chicago and formed his own company to manufacture bicycles. In 1909 he organized the Knox Independent Metal Wheel Co., in Knox, Ind., to manufacture small metal rubber tired wheels for bicycles, buggies and velocipedes. Later that same year he had his first venture in the automobile manufacturing field when he was elected president of the Kalamazoo Manufacturing Co., makers of small metal parts for automobiles.

In 1910 Mr. Murray moved to Detroit to become a director and factory manager of the Michigan Stamping Co., in

charge of making sheet metal parts for automobiles. He remained with this company until April, 1913, when he formed the J. W. Murray Manufacturing Co., builders of automobile bodies. Besides his connections with the Murray Corporation of America and the J. W. Murray Corporation, he was also a director of the Murray-Ohio company of Cleveland.

Besides his widow, Mr. Murray leaves one son, J. R. Murray, and two daughters, Mrs. J. T. McHugh of Detroit and Mrs. C. W. Hannon of Cleveland. He is also survived by two brothers, Frank of Detroit, and Andrew of Saginaw, and two sisters, Ella and Margaret, both of Saginaw. The funeral will be held from the Holy Rosary church Monday.

February Slump Was General

WASHINGTON, March 12.—A general seasonal decline in retail trade throughout the United States during February is reported to the Federal Reserve Board by its member banks and which is made public in the board's regular monthly survey. Sales of department stores and mail order houses were slightly smaller than in February of a year ago, while sales of chain stores, owing partly to an increase in the number of stores in each chain, continued larger than in the corresponding month of last year.

Attendance Record at Boston

BOSTON, March 12.—Boston's silver anniversary automobile show came to a close here this evening with a new record for paid attendance, and a satisfactory showing in sales. Some companies exceeded the number sold a year ago. Others did not touch the mark of 1926. The other group just about broke even. So that made the general average about the same as a year ago. This means retail sales. On the other hand a number of companies signed up new dealers, and they ordered cars.

Many of the dealers are going to keep open evenings for the next few weeks to meet the demand they expect to follow the show.

Trade Papers and Trade Paper Advertising Given Warm Indorsement by Reeves

BOSTON, March 14.—Declaring that the automobile industry could not have been brought to its present position of leadership without advertising, Alfred Reeves, general manager of the National Automobile Chamber of Commerce, speaking before the Boston Advertising Club, had a special word of commendation for trade paper advertising.

After pointing out the field and uses of newspaper and general medium advertising, Mr. Reeves said:

"One field of advertising which is too often neglected is that of the trade papers. Show me an industry which has successful business publications, and I can tell you without any further

evidence that that industry is a successful one. I know of no business which has a better line of trade papers than the automobile industry. They are well edited, well printed, well merchandised and they have a high standard of ethics."

In another address before the Boston Automobile Dealers' Association at the Copley Plaza, he said that while he did not believe 1927 would be a boom year he saw no reason why prosperity should not continue and why automobile production should not be as big as last year, or approximately 4,450,000 units, of which 600,000 will go to foreign countries.

Distribute Ethyl Fluid In Nearly Every State

Corporation Is Starting on Intensive Campaign to Market Product

NEW YORK, March 12.—Ethyl Gasoline Corp., after nearly a year of preparation, has attained distribution of its product in nearly every state of the country, as well as in Canada, and is now embarking on a program of intensive development of the market.

Companies already licensed to mix Ethyl fluid with gasoline at their refineries and to sell to the trade and public total 19, and a number of others are being added to the list.

Investigations made by the engineers of the corporation into fuel problems, facts about Ethyl gasoline and how it has won the approval of public health authorities and other data have been incorporated into a non-technical "primer," which is to be broadcast to all interested from the offices at 25 Broadway.

Companies now licensed include Associated Oil Co., Atlantic Refining Co., Beacon Oil Co., Continental Oil Co., Humble Oil & Refining Co., Imperial Oil Co., Ltd. (Canada), Pennzoil Co., Refiners Oil Co., Spears & Riddle Co., Spokane Oil & Refining Co., Standard Oil Co. (Indiana), Standard Oil Co. (Kentucky), Standard Oil Co. of Louisiana, Standard Oil Co. of Nebraska, Standard Oil Co. (New Jersey), Sterling Oil Co., Union Oil Co. of California, Walburn Petroleum Co. and Waverly Oil Works.

Duesenberg Offers New Sport

INDIANAPOLIS, March 14.—A new Duesenberg open sport model with a number of mechanical and body improvements is announced by Duesenberg, Inc.

This car is powered with a Duesenberg straight eight engine with 2 1/2 in. bore and 5 in. stroke. Having an N. A. C. C. horsepower rating of 26.4, this engine is said to drive the car at a maximum road speed of 90 miles per hour. And by the installation of a supercharger, which is optional, additional speed up to 110 miles per hour is said to be available. Hypoid gears are used in the differential, making it possible to lower the height of the car.

The wheelbase is 135 in., and the frame of chrome nickel steel has an 8 in. depth and five tubular cross members, the center one being 7 in. in diameter.

The body is built by Locke and is finished in Old Ivory brightened with Painter's Green on the beading. Wire wheels also are finished in green. The upholstery is black and green leather. The rear seat is equipped with a one-piece adjustable windshield and the top is of unusually low construction.

Sees Great Opportunity Ahead for Engineers

Moskovics Says Next Four Years Will Witness Many Mechanical Changes

CHICAGO, March 11.—Speaking before the March meeting of the Chicago section of the Society of Automotive Engineers, F. E. Moskovics, president of the Stutz Motor Car Company of America, predicted that in the next four years the automobile will undergo greater mechanical changes than in the last 10 years.

Mr. Moskovics' subject was, "The Engineering Stage of the Automobile Industry Has Arrived," and the substance of his talk was to the effect that the opportunity for the engineer who is working to improve the automobile is greater today than ever before.

Giving reasons for his opinion Mr. Moskovics divided the progress of the industry into three stages. The first was that of promotion, when the biggest job was to convince the public that the automobile was a practical thing and actually a utility. The next stage was that of production when the greatest engineering and executive talent was directed toward the problem of manufacturing the automobile in quantity and at a price that would make it available to the public.

And the third stage which is now being entered is that of refinement and development, and in this stage Mr. Moskovics believes the public is prepared to accept new things, no matter how radical they may appear as compared with the old, provided these new things prove their right to exist by performing a real service in a better way. The opportunity for new meritorious article is unlimited, he said.

Opportunity for Engineer

"This new condition," he said, "creates an unbounded opportunity for the engineer and it also places upon him a grave responsibility. His new responsibility to produce improved motor cars that will be of greater economic value to the public. He must not produce freaks, for the freak, or the new device that proves to be unsound, has a most damaging effect upon business.

"The new opportunity for the engineer is created by two conditions, first, the public knows values and understands the mechanics of the automobile, and second, competition is forcing manufacturers' hand. I feel sure that the inventor or engineer with a really worth while article can get a hearing today by any large producer of automobiles. If he can't get it from the engineering department he can get it from the general manager.

"The public is demanding better automobiles and wants every improvement that it is possible to get. You and I must do the improving. The au-

Demonstrating the Latest Stutz Cars Abroad



Bert Dingley

Having with him one of the latest "Safety Stutz" models Bert Dingley, manager of the service department of the Stutz Motor Car Company of America, is in Europe for a four months' stay overseas. Stutz demonstrations in many overseas automotive centers will be a feature of Mr. Dingley's tour. Formerly a prominent racing driver who took part in such competitions abroad, Mr. Dingley's name is a familiar one in Europe's track and engineering circles.

tomobile must be made better. If all the roads in this country were paved highways we know we could immediately take 1000 pounds out of every car that weighs over 3500 pounds. And the improved highway mileage is constantly increasing. That shows something about our opportunity for progress.

"But a warning is necessary here. We must not carry improvements too far. Too much improvement—or improvement made too rapidly—can kill an industry. Improvement must be measured by economic factors. The engineer of today must be a combined creative artist and executive who knows production and is able to interpret the desires of the public in terms of the finished automobile. For that kind of engineer the opportunity is wide open."

Considerable general discussion followed Mr. Moskovics speech and he replied to a number of questions.

Abbott Succeeds Minnock

PHILADELPHIA, March 14.—Peter F. Minnock, for many years manager of the Ford Motor Co. plant in Philadelphia, resigned last week. He will be succeeded by Edward Abbott, who has been manager of the Houston, Texas, branch.

"Moderate" Delivery by July on New D.B. Cars

Company's Present Line Is to Be Continued, Says Factory Statement

DETROIT, March 12.—According to Joseph M. Dodge, vice-president and general manager of Thomas J. Doyle, Inc., Dodge Brothers dealer for the Detroit territory, he has been informed by the factory that the car which Dodge Brothers, Inc., will introduce as a supplementary line to their present models, will be available for moderate retail delivery on or before July 1. The four-door sedan of the new car, he said, will be sold for \$1650 f.o.b. Detroit.

Since public announcement of the car made in January, dealers throughout the country have been receiving many inquiries about the car, and, it is understood that the factory is thoroughly up to schedule and will be in a position to introduce the car by the date announced.

"We also take this occasion to again assure you that production of the present Dodge Brothers power plant and the sale of our present standard line of cars will be continued," the statement from the factory reads. "Rumors inconsistent with this statement are false and misleading and should be promptly and vigorously denied."

Two New Clarksteel Trucks

DETROIT, March 12.—F. G. Clark, who purchased the Columbian Motor Truck Co., at Pontiac, last fall, and organized the Clarksteel Truck Co., announces that his company is now building two models, a 2½ ton and a 3½ ton truck. The trucks are of the high speed type and the company claims they will maintain a speed of 40 miles per hour with full load.

Units used in the truck are: Continental 6 cylinder engine; Brown-Lipe truck transmission; Ross steering gear; Wisconsin double reduction full floating rear axle; Pick fabric universal joints; Indestructible Wheel Co.'s disk steel wheels; Stromber carburetor; Auto Lite electrical equipment; Willard storage battery; Racine radiator and Timken bearings. The company, he stated, manufacturers its own frames, forgings and castings.

Merger in St. Louis

ST. LOUIS, Mo., March 14.—A merger of the Lambert-Graves Motor Co. and the A. J. Brock Motor Sales Co. has resulted in the formation of the Kingschester Motor Co., which will occupy the building at Kingshighway and Manchester, formerly occupied by Lambert-Graves and will handle the Hudson and Essex line.

A. J. Brock is president of the new firm; S. B. Lambert vice-president, L. J. Weber secretary, and C. E. Graves treasurer.

Buick Pioneers Hold Their First Convention

Organization of Distributors Guests of C. S. Howard in San Francisco

ST. LOUIS, March 10.—The first semi-annual meeting of the Buick Pioneers, an organization made up of the distributors of Buick automobiles, will be held in San Francisco for the week of March 15th, where the pioneers will be guests of C. S. Howard, president of the Howard Automobile Company, Pacific Coast distributors of Buick. This group represents perhaps the largest sales volume in the automobile industry, having marketed last year 87,522 Buick cars which were sold for \$123,979,242, a very large per cent of the entire production of the Buick Motor Company.

The party will be in charge of H. E. Pence, president of the Pence Auto Company of Minneapolis, who is president of the Pioneers, and F. W. A. Vesper, president Vesper-Buick Auto Co., of St. Louis, secretary-treasurer of the organization. Every man in the group is an old timer in the industry, as well as with Buick, most of them being connected continuously with Buick marketing almost since the inception of the company, the junior or baby of the party in point of time for more than 15 years.

The object of the Buick Pioneers organization is to visit the business establishments of members to see how they do things in their towns and to learn or criticize as the case may be, with the idea of developing the best sales and servicing methods by free interchange, based on actual experience. Each succeeding meeting is to be in the city of one of the group, the local distributor becoming host.

Guests of Vespers

The eastern members will assemble in St. Louis on Thursday, March 10th, where they will be the guests of F. W. A. Vesper, president, and W. H. Vesper, vice-president, of the Vesper-Buick Auto Co. They will inspect the new plant of the Vesper-Buick Auto Co., Vandeventer Avenue, West Pine and Laclede, and the two new buildings recently completed for West Side Buick Auto Company and South Side Buick Auto Company. The Buick Pioneers will be entertained at Fredmar Farms, the summer home of F. W. A. Vesper, during the day.

Leaving St. Louis in two private cars—they will stop over at Kansas City on Friday, March 11th, where a program of entertainment has been mapped out by J. Frank Martin, Buick district sales manager, and W. E. Rea, branch manager of the Buick Motor Company. The inspection trip in Kansas City will include a tour of the city and inspec-

San Francisco's 1926 Show Passes Into History But Howard Capitalizes Its Influence

SAN FRANCISCO, March 14.—Taking advantage of interest in motor cars created by the San Francisco Show a "little automobile show" was staged with signal success by the Howard Automobile Company, Buick distributors.

Under the direction of William V. Kearns, manager, the local Howard branch arranged a duplicate of the Buick display presented at the big 1927 automobile exhibit in San Francisco.

The branch also capitalized Buick's

tion of Buick branch houses facilities and dealer locations.

Proceeding from Kansas City—the party will stop over at Denver on Saturday, March 12th, as guests of Walter J. Haughey, manager of the Buick Motor Company branch—and will renew acquaintance with Findley MacFarland, who was one of the "old timers" until he retired from active business a short time ago. An inspection trip of the city of Denver—together with the Buick branch and the dealer locations—will be followed with a visit to Troutdale-in-the-Pines, the great hotel built by H. E. Sidles, who will be one of the party. Mr. Sidles is president of the Nebraska Buick Company, Lincoln, Neb.

In the Denver Party

The Denver visitors will include H. E. Pence, president, and W. B. Stephens, vice-president, of Pence Auto Company, Minneapolis—Mr. Pence incidentally is also president of the Minneapolis, Northfield & Southern Railway; H. K. Noyes, president Noyes-Buick Company, Boston, and H. E. Noyes, his son, general manager of the company, the New England distributor; C. L. Whiting, Rochester, New York; H. S. Leyman, president Leyman Buick Company, Cincinnati; G. G. G. Peckham, president Ohio-Buick Company, Cleveland; Guy S. Garber, president Garber-Buick Company, Saginaw, Mich.; C. C. Coddington, president, and Lee Folger, general manager, of C. C. Coddington, Inc., of Charlotte, N. C.; F. W. A. Vesper, president Vesper-Buick Auto Co., St. Louis, and former president National Automobile Dealers' Association and St. Louis Chamber of Commerce. Representing the Buick factory branches is A. G. Southworth, manager Buick Motor Company of New York, the oldest branch manager in point of service in the company.

At Denver the party will be joined by H. E. Sidles, president Nebraska Buick Company, Lincoln, and Lee Huff, manager of Omaha branch of this company. At Salt Lake, A. G. Randall, president Randall-Dodd Company, will join, and at San Francisco, C. W. Hunt, vice-president Ohio-Buick Company, Cleveland; A. S. Eldridge, president Eldridge-Buick Company of Seattle and Spokane, and Frank Howard, Howard

authorized service, making a complete display with the cooperation of local Buick authorized service stations. Much interest was taken in this feature by visitors along with a mechanical display including three stripped chassis. Howard staged a similar show last year. In speaking of results Mr. Kearns said scores of new prospects were listed and February's business increased 28 per cent above the sales figure registered in February, 1926.

Automobile Company, Los Angeles, will meet the party.

After meeting in San Francisco, several days will be spent in Del Monte, and the entire group will motor to Los Angeles.

30,000 March Schedule

TOLEDO, O., March 14.—Production of Whippet and Willys-Knight cars for March will be 30,000, say factory officials. This will bring the total production for the first quarter up to the number necessary at this season to meet the 300,000 schedule set for the year. March production, it is said, will be 88 per cent in excess of production for the same month of last year and 60 per cent in excess of February production for this year.

March production is divided 60 per cent Whippets, including the Whippet Six, and 40 per cent Willys-Knight.

With the introduction of its 1927 line of Willys-Knights, Whippets and Whippet Sixes, Willys-Overland's dealer organization has shown an unusual growth. The latest additions bring the dealerships near the 6000 mark.

Increase Motor Wheel Shares

LANSING, March 12.—At the annual meeting of the Motor Wheel Corporation held here, Tuesday, the board of directors was authorized to increase the non-par stock to 1,000,000 shares. Besides this action, regular routine business was disposed of and all the officers and members of the board of directors were re-elected for the ensuing year.

Previous to Tuesday's action, a total of 600,000 shares of non-par stock had been authorized of which 550,000 shares had been issued. As a result of the action 450,000 additional shares will be held in the treasury to be issued at such time and upon such occasion as the board of directors may see fit.

Edwards Going Abroad

SYRACUSE, March 12.—Edward G. Willems, newly appointed export counsel of the Franklin Automobile Company, will go to all parts of the civilized world in fulfilling his new duties. He leaves this month for Cuba, Porta Rico and South America.

Toledo's Plant Payroll Is Largest in 5 Years

Automotive Workers Number Over 4000 More Than This Time in 1926

TOLEDO, March 14.—Automotive plants in Toledo are now at a new peak of employment it is indicated by a report showing 51 plants employing 30,795 workers as against 26,075 a year ago. This is the highest point reached in five years.

The Willys-Overland company is going forward on a schedule of 30,000 motor cars for March, which is 60 per cent gain on February production and 80 per cent better than last March. Willys-Knights make up 40 per cent and Whippets 60 per cent of the current month's schedule.

The Chevrolet Ohio Motor company plant here is turning out 5000 complete transmission sets every day furnishing both Chevrolet and Pontiac factories with these units.

Champion Spark Plug company, Mather Spring company, and Tillotson Manufacturing company are also working on high production schedules.

Stutz Chief Back from West

CHICAGO, March 11.—F. E. Moskovics, president of the Stutz Motor Car Co. of America, returned this week from an extensive tour of the Pacific Coast upon which he started while the Chicago show was in progress. He visited Stutz distributors and dealers throughout the west and also talked before a number of meetings.

Mr. Moskovics reported the automotive outlook generally favorable throughout the west and especially promising in California where abundant rain has improved the agricultural outlook.

Upon his return to Chicago Mr. Moskovics was asked to address the student body of Armour Institute and especially significance attached to this invitation in view of the fact that Mr. Moskovics was the first student to register in Armour Institute when it was opened in 1893. In his talk to the students he urged them in the practice of engineering to always remember the economic side of business which requires that all engineering shall be practical.

Electric Auto-Lite Profits

TOLEDO, March 14.—Gross sales of \$11,726,310 in 1926 as compared with \$12,489,332 for 1925 enabled the Electric Auto-Lite company to show \$2,040,894 profits before federal taxes last year as compared to \$2,526,902 for the previous year, according to the annual report submitted to stockholders by President C. O. Miniger.

The record of last year is considered

Named Vice-President of Delco-Remy



O. Lee Harrison

O. Lee Harrison recently was appointed vice-president of the Delco-Remy Corp. He was vice-president and general manager of Delco previous to its merger with the Remy Electric Co. He then joined General Motors staff to conduct special investigations. Mr. Harrison will make headquarters in the Delco-Remy sales offices in the General Motors Bldg., Detroit.

good due to the fact that it was a reconstruction year with the company during which the plant layouts here and at Fostoria were enlarged and changed, the starting, lighting and ignition business of the American-Bosch Magneto corporation was purchased and merged into the plant here, and automotive business generally had a slack period in the last quarter of the year.

This year should see a new high record in sales, production and earnings in the opinion of President Miniger. February already has set a record of being the best month in the history of the company and schedules for March and April are each 66 per cent ahead of last month. It is believed the earnings of the first half of the year will surpass those of 1925 or 1926.

Moto Meter Reports Profits

NEW YORK, March 11.—The annual report of the Moto Meter Co., Inc., and its subsidiaries for 1926 shows a net income of \$1,561,973.51. After paying dividends of \$920,000 and making other adjustments, the total surplus including that carried over from the beginning of the year was \$2,160,156.77.

Total current assets at the close of the year were \$2,386,839.19, which included \$1,406,454.84 cash in bank, at call, and on hand. Total current liabilities were \$319,889.83.

Franchises by Marmon Doubled Since January 1

Many New Dealers Signed Following Addition of New Smaller Car

INDIANAPOLIS, March 11.—The Marmon Motor Car Company has doubled its distributor and dealer organization since Jan. 1, when the new Little Marmon Eight was introduced to the public. This report is made by H. H. Brooks, general sales director of the Marmon company, who is making current announcement of more than a score of new sales connections in all parts of the country.

An important distributive point in the southern territory was closed when the Motomart, Inc., was appointed distributor at Mobile, Ala. This company is headed by Joseph W. John, who formerly was an associate Marmon dealer in Mobile. The territory includes eight counties in southwestern Alabama.

New dealers which have been announced by Mr. Brooks are as follows:

Tecks Motor Company, Madison, Wis.
Buckley Bros., Chicago, Ill.
Hanke & Gorf, Inc., Chicago, Ill.
Wilde Motor Car Company, Vancouver, Wash.

George W. Cromley, Bellefontaine, O.
Hobbs Garage, Aurora, Ill.
Baldwin Repair Company, Middletown, Conn.

John P. Harris, Port Chester, N. Y.
Marmon Akron Company, Akron, O.
Central Motors Company, Lynn, Mass.
H. C. Lewis, Lewisburg, Pa.
Marmon Company of Altoona, Altoona, Pa.

South River Motor Car Company, New Brunswick, N. J.

South River Motor Car Company, South River, N. J.

Marmon Greenport Company, Greenport, Long Island, N. Y.

Emmons Blanchard, Boonton, N. J.
Central Motor Sales, DeKalb, Ill.

Hi Way Motor Car Company, New London, Wis.

George L. Lloyd, Harvard, Ill.
U. H. Warner, Waterbury, Conn.
C. E. Tiernan, New Haven, Conn.
J. F. Buckman, New Haven, Conn.

Taylor Joins Copeland

SYRACUSE, March 12.—Albert M. Taylor, recently appointed sales promotion manager of the H. H. Franklin Manufacturing Company, makers of the Franklin automobile, has resigned to accept a position as advertising manager of the Copeland Refrigerator Company of Detroit, Mich.

N. S. P. A. Division Organized

CHICAGO, March 10.—Organization of Division No. 1 of the National Standard Parts Association has been completed by the adoption of by-laws. C. M. Burgess, president, has announced the appointment of committees on membership, resolutions, program, publicity, finance, dealer merchandising and jobber credit.

Many A.E.A. Meetings On March-April List

Tentative Schedule Provides Merchandising Sessions for 57 Cities

CHICAGO, March 10.—Fifty-seven merchandising meetings under the auspices of the Automotive Equipment Association appear on the tentative schedule between March 10 and the latter part of April, according to a bulletin just released at A. E. A. headquarters here. The release also included a meeting for Paducah, Ky., which was held yesterday.

Thirty-three of the meetings on the list will be held before the end of the present month, with 24 on the tentative slate for April. At each of the meetings speakers will make a plea for better merchandising practices. With six exceptions all of the March gatherings will be held east of the Mississippi river, while with one exception the April schedule provides for meetings west of the Mississippi. The March meetings listed are as follows:

March 10, Owensboro, Ky., Bismarck, N. D., and Oklahoma City; March 11, Princeton, Ind., Huntington, Pa., Toronto, Can., and Cleveland, O.; March 12, Little Rock, Ark., and Scranton, Pa.; March 14, Ashville, N. C., and Bessemer, Ala.; March 15, Washington, D. C., Montgomery, Ala., and Danville, Ill.; March 16, Dallas, Tex.; March 17, Clearfield, Pa.; March 18, Bellefonte, Pa., Waco Tex., Youngstown, O., and Indianapolis; March 19, San Antonio; March 21, Chattanooga, Akron, Atlantic City; March 22, Knoxville, Tenn.; March 23, Lima, O.; March 24, Gettysburg, Pa., and Grand Forks, N. D.; March 25, Columbus, O., Lebanon, Pa., and Ft. Wayne, Ind.; March 28, Vineland, N. J.; March 30, Monroe, La.

Many Automotive Bills

NEW YORK, March 12.—Record breaking activity in state legislatures this season in the introduction of bills affecting the automotive industry is reported by local observers. Since the first of the year about 1700 bills of this nature have been brought up for consideration in 42 states. In 19 states there are proposals to increase the gasoline tax and two are considering establishment of a gasoline tax, according to the figures of the National Automobile Chamber of Commerce.

As a result of the campaign against compulsory insurance now being waged, it appears that there are only two states, New Jersey and Pennsylvania, in which there is any real immediate danger of passage of compulsory insurance laws. Even in these two states it is likely that the measure will be disapproved.

NEW Automotive Literature

LINCOLN WELDER INSTRUCTION MANUAL. This booklet, published by the Lincoln Electric Co., Cleveland, Ohio, discusses among other subjects high speed steel welding, high pressure pipe welding, welding of automobile frames, boiler repairs, welding cast iron, carbon arc welding. It is illustrated with photographs and drawings. The price is \$1.00 a copy.

Federal Directors Elect

DETROIT, March 12.—C. A. Rogers was named treasurer of the Federal Motor Truck Co. at the annual meeting, succeeding E. P. Hammond. Mr. Rogers previously was assistant treasurer. Besides being reelected assistant secretary, R. W. Rudden was also named assistant general manager of the company. The following were elected directors: T. E. Reeder, M. L. Pulcher, Edward P. Hammond, Charles F. Mellish, Dr. W. E. Rice, Frank H. Wheldon, W. E. Metzger, Hal H. Smith and C. A. Rogers. Officers besides the above mentioned are M. L. Pulcher, president, and Charles F. Mellish, secretary.

To Discuss Traffic Safety

NEW YORK, March 11.—A conference of mayors, commissioners of public safety and other municipal officials will be held in Chicago April 13 and 14 for the discussion of ways and means for best handling of city traffic congestion, as a result of the action taken this week by the city traffic committee of the National Automobile Chamber of Commerce.

The conference is expected to act as a clearing house for the latest and best traffic plans and systems. The committee, in issuing invitations and preparing the program for the meetings, proposes a round table discussion rather than formal addresses. Edward S. Jordan, P. I. Emerson and Alvan Macauley, as members of the committee, will preside at sessions of the conference.

New N.S.P.A. Service

DETROIT, March 12.—The National Standard Parts Association has put into operation an obsolescence exchange plan for its manufacturing members that will provide jobbers with more prompt service on obsolescent numbers and result in benefit to the producers. The association has compiled a master list of piston pins from obsolescence inventories supplied by nine such manufacturers. The list shows how many pins of each size each maker has and designates the particular pins for each engine by master number. Such compilations are to be made quarterly.

Style Parade Features Spring Show in Dallas

Twenty-Seven Dealers Are In on Big Event That Crowds Sales Rooms

DALLAS, Texas, March 14.—The Dallas Automobile dealers have just staged their Spring Automobile Show. Departing from the usual custom the dealers had the exhibitions in their sales-rooms rather in the Automobile Show building at the State Fair grounds.

Twenty-seven dealers participated in the show. All the newest models which were on exhibition at New York and Chicago were seen in the Dallas show rooms. Sales rooms were attractively decorated.

The feature of the show was a "style parade" in which more than 130 new models were seen. This parade moved through all leading business streets. A sport model, driven by a pretty girl, led each division of cars in the parade. The dealers had advertised their show extensively and thousands of persons turned out to see the big parade. Sales rooms were crowded with visitors all the week. Dealers reported a large number of sales as a result of the show.

The annual show of the Dallas dealers will be held in October. This time the display will be in the Automobile Show building at the Fair grounds.

Bobb Opens New Building

COLUMBUS, O., March 15.—In connection with the opening of the new building of the Bobb Chevrolet Co. here the Columbus Evening Dispatch published a special section with its issue of March 1 called the Bobb Chevrolet Section. The newspaper contained a full description and illustrations of the new building in the design of which suggestions and sketches were furnished by Tom Wilder, architectural editor of MOTOR AGE. The building is modern in every respect and well equipped for both sales and service. It provides room for the rapid expansion of the company. The president of the Bobb Chevrolet Co., is George C. Bobb, who first started in the automobile business as a Ford salesman a few years ago.

New Line for Federal-Mogul

DETROIT, March 10.—The Federal-Mogul Corp. announces that it has taken over the entire distribution of the Shoemaker Model D connecting rod bearing machine, and will distribute these machines to its distributors to be used for rebabbitting connecting rods. This will still further expand the service of the Federal-Mogul Corp., which now includes an entire replacement line of bearings, bushings and special automobile babbitt metal. The price of the Shoemaker machine is \$373 with gas furnace and \$350 with gasoline furnace.

Rapid Improvement Is Seen in Tire Industry

Manufacturers and Dealers Much More Optimistic Than They Were

AKRON, O., March 12.—Improvement in the rubber and tire industry has been rapid during the past few weeks, reflecting for one thing a sharp increase in motoring due to good weather recently and the approach of spring.

Early March production schedules of most Akron rubber companies were from 20 to 30 per cent on the average above those in effect at that time last year. Tire output figures in the district are much higher than they have been in many months. Estimates place current production between 135,000 and 140,000 casings and about 170,000 tubes a day, against some 110,000 casings earlier in the year.

With manufacturers and dealers far more optimistic than they were at the start of the year, the belief is prevalent that the tire industry, after a decidedly poor year in 1926, has hit its normal stride, and will continue the pace throughout most of the current year. Dealers are ordering heavily, in anticipation of a big spring business. Prices of tires are at bottom levels, it is believed, and the recent upward tendency in the crude rubber and cotton markets has encouraged buyers to replenish depleted stocks.

Systematic Parts Stealing

KANSAS CITY, Mo., March 14.—More than \$100,000 worth of Ford parts have been stolen from the Kansas City Ford plant during the past year by eight employees of the plant, it was discovered when they staged a fake hold-up in order to cover the shortage of parts. The robbery was systematic in that the men had been throwing articles on the trucks leaving the plant which were later resold to a "fence," who paid 20 per cent of the wholesale price for the loot.

Hold Annual Meeting

DUBUQUE, Ia., March 14.—Associate dealers of the F. & S. Motors Co. gathered at the Oakland and Pontiac distributors' headquarters here for their annual meeting. F. M. McHenry and G. A. Hitchcock of the Oakland Motor Car Co. and R. J. McHenry and J. H. Benson of the General Motors Acceptance Corp. were speakers. Motion pictures of the manufacture, operation and operation of the cars were shown.

Chrysler Dealers Confer

KANSAS CITY, March 14.—Distributors and dealers of the Chrysler Sales Corporation, operating under the Kansas City District office and covering Oklahoma, Kansas, Texas, New Mexico

Coming Motor Events

Automobile Shows

Asbury Park, N. J.	March 28-April 2
	Casino
Bangor, Maine	March 15-17
Jacksonville, Fla.	March 19-25
Rocky Mount, N. C.	April 4-8
	Tobacco Warehouse
Saginaw, Mich.	March 23-26
San Antonio, Tex.	March 14-19
	Municipal Auditorium
Tampa, Fla.	April 1-5
	Davis Islands Coliseum

Atlantic City	Sept. 24
Charlotte, N. C.	July 11
Detroit	Sept. 18
Indianapolis	May 26
Los Angeles	Nov. 27
Salem, N. H.	June 25
Salem, N. H.	Oct. 12
Syracuse, N. Y.	Sept. 3

Races

A. A. A.

Altoona, Pa.	June 11
Altoona, Pa.	Sept. 5
Atlantic City	May 7

Conventions

Automotive Equipment Association, Summer Convention, Multnomah Hotel, Portland, Ore.	June 27-July 2
National Association of Automobile Show and Association Managers, Drake Hotel, Chicago	July 26-27

S. A. E.

French Lick Spring, Ind.	May 25-28
	Summer Meeting

and Missouri, attended a luncheon at the Kansas City Athletic Club that was one of the most successful and enthusiastic meetings ever held in that territory.

Speakers were Henry T. Myers, director of sales, Chrysler Sales Corporation; H. M. Warehein of the Commercial Credit Corporation; K. R. Spencer in charge of the Kansas City office and J. W. Frazer, recently appointed general sales manager of the Chrysler Sales Corporation. Mr. Frazer was the speaker of the day.

Ford Company Is Host

DETROIT, March 14.—The Ford Motor Company entertained 2600 farmers from parts of Indiana, Ohio and Michigan at its Fordson plant last Tuesday. The visitors, accompanied by Ford dealers and their representatives, came on three special trains on the Detroit, Toledo and Ironton railroad, the Ford railway. The day was spent in inspecting the plant and the guests were entertained at luncheon at noon. Forty-five guides were required to escort the party over the property.

Owners Are Banquet Guests

WELLSTON, O., March 14.—The Neary-Buick Co., distributors for Buick in Jackson and Vinton counties entertained more than 100 guests, which included Buick owners in that territory, at a banquet to celebrate sales achievements in the month of December. Practically all of the Buick owners in the two counties attended. W. O. Protzman, vice-president of the Leyman-Buick Co., of Cincinnati was the principal speaker.

Installing New Machinery

MINNEAPOLIS, March 14.—The Arrow Head Steel Products Co., manufacturer of pistons and automotive parts, is installing additional machinery and manufacturing equipment to take care of its increased production which now requires twenty-four hour operation of the manufacturing plants.

Hinkley Vice-President

DETROIT, March 14.—C. C. Hinkley, formerly president of Hinkley Motors, has been elected vice-president in charge of manufacturing of the American Brake Materials Corporation, a subsidiary of the American Brake Shoe & Foundry Co., which was organized last September. Percy Owen, well known in the industry, is president of the company.

Star Sales Discussed

MARIETTA, O., March 14.—Becker Brothers, distributors for Star in Washington county, Ohio, and a portion of West Virginia, held its annual sales conference recently. Associate dealers and salesmen from a number of towns attended the conference. N. B. Reisinger and George Hagen, factory representatives from the Cincinnati Zone, and Joseph Dailey, special service representative from Lansing, Mich., were the speakers.

January Sales Lower

NEW YORK, March 14.—January sales of passenger cars in New Jersey totaled 6650 against 8373 in January, 1926, according to Sherlock and Arnold figures.

Prices and Weights of Current Passenger Car Models

| SHIP
WT. PASS. BODY STYLE. PRICE |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| AUBURN | | CHEVROLET "AA" | |
| "6-66" | | 1890 2-p Roadster \$ 525 | DU PONT "E" |
| 2-4-p Roadster 1,095 | | 1965 5-p Touring 525 | 3700 4-p Roadster \$ 2,800 |
| 5-p Touring 1,145 | | 2090 2-p Utility Coupe 625 | 3850 5-p Touring 2,800 |
| 3040 5-p Sport Sedan 1,195 | | 2190 5-p Coach 595 | 3850 4-p Coupe 3,200 |
| 3080 5-p Sedan 1,295 | | 2275 5-p Sedan 695 | 4100 5-p Sedan 3,400 |
| 3040 5-p Wanderer Se'n 1,345 | "8-77" | 2135 2-4-p Cabriolet 715 | 4100 5-p Conv't. Sedan 3,750 |
| | | 2270 5-p Landau Sedan 745 | |
| 2-p Roadster 1,395 | | | |
| 5-p Touring 1,445 | | | |
| 3350 5-p Brougham 1,495 | | CHRYSLER "50" | |
| 3390 5-p Sedan 1,695 | | 2145 5-p Touring \$ 750 | EICLAR "6-70" |
| 3390 5-p Wanderer se'n 1,745 | "8-88" | 2025 2-p Roadster 750 | 2580 4-p Lan. Rdster \$ 1,475 |
| (129 in. W. B.) | | 2130 2-4-p Roadster 795 | 2670 5-p Brougham 1,295 |
| 3180 4-p Sp. Roadster 1,995 | | 2230 2-p Coupe 750 | 2750 5-p Sedan 1,395 |
| 3200 5-p Touring 2,045 | | 2335 5-p Coach 780 | |
| 7-p Touring 2,295 | | 2410 5-p Sedan 830 | |
| 3380 5-p Sport Sedan 2,095 | | 2350 5-p Landau Sedan 885 | 3675 7-p Touring \$ 2,265 |
| 3450 5-p Sedan 2,195 | | | 3620 2-4-p Land. R'dster 2,295 |
| 3450 5-p Wanderer 2,245 | | | 3320 2-4-p Roadster 2,315 |
| (146 in. W. B.) | | 2570 5-p Touring \$ 1,075 | 3710 5-p Brougham 2,195 |
| 4200 7-p Sedan \$ 2,595 | | 2545 2-p Roadster 1,145 | 3895 5-p Sedan 2,465 |
| | | 2605 2-4-p Roadster 1,175 | 4245 7-p Sedan 2,765 |
| BUICK "115" | | 2720 2-p Coupe 1,125 | |
| 2990 2-4-p Roadster \$ 1,195 | | 3-5-p Coupe 1,245 | |
| 3040 5-p Touring 1,225 | | 2795 5-p Coach 1,145 | |
| 3110 2-4-p Coupe 1,195 | | 2835 5-p Sedan 1,245 | |
| 3215 5-p 2d. Sedan 1,195 | | | |
| 3190 4-p Coupe 1,275 | | "60" | |
| 3190 2-p Spec. Coupe 1,275 | | 2845 2-4-p Roadster \$ 1,495 | |
| 3300 5-p 4d. Sedan 1,295 | | 2930 5-p Phaeton 1,395 | |
| 3305 5-p Town Bro'm 1,375 | | 2905 5-p Sp. Phaeton 1,495 | |
| "120" | | 3000 2-4-p Royal Coupe 1,645 | |
| (120 in. W. B.) | | 3090 5-p Brougham 1,625 | |
| 3800 4-p Coupe \$ 1,465 | | 3150 5-p Royal Sedan 1,595 | |
| 3750 5-p 2d. Sedan 1,395 | | 2935 2-4-p Cabriolet 1,745 | |
| 3870 5-p 4d. Sedan 1,495 | | 3160 5-p Crown Sedan 1,795 | |
| "128" | | | |
| (128 in. W. B.) | | "80" | |
| 3655 2-4-p Sp. Roadster \$ 1,495 | | (185½ in. *) | |
| 3735 4-p Sp. Touring 1,525 | | 3845 2-4-p Roadster \$ 1,495 | |
| 2905 3-p Country Club 1,765 | | 2930 5-p Phaeton 1,395 | |
| 3940 5-p Coupe 1,850 | | 3095 2-4-p Sp. Phaeton 1,495 | |
| 3915 3-5-p Conv't Coupe 1,925 | | 3000 2-4-p Royal Coupe 1,645 | |
| 4050 5-p Brough. Sedan 1,925 | | 3090 5-p Brougham 1,625 | |
| 4115 7-p Sedan 1,995 | | 3150 5-p Royal Sedan 1,595 | |
| CADILLAC "314" Standard Line | | 2935 2-4-p Cabriolet 1,745 | |
| (132 in. W. B.) | | 3160 5-p Crown Sedan 1,795 | |
| | | | |
| | | "80" | |
| | | (185½ in. *) | |
| | | 3845 2-4-p Roadster \$ 1,495 | |
| | | 3925 5-p Phaeton \$ 2,495 | |
| | | 3805 2-4-p Roadster 2,595 | |
| | | 4220 5-p Coupe 3,095 | |
| | | 3850 5-p Sedan 2,675 | |
| | | 4260 5-p Sedan 3,095 | |
| | | | |
| | | "60" | |
| | | (192½ in. *) | |
| | | 4090 4-p Coupe \$ 2,895 | |
| | | 4065 2-p Cabriolet 3,495 | |
| | | | |
| | | (198½ in. *) | |
| | | 4450 7-p Sportif \$ 3,995 | |
| | | 4260 5-p Sedan 3,295 | |
| | | 4265 7-p Sedan Lim. 3,595 | |
| | | 4265 5-p Town Car 5,495 | |
| | | | |
| | | "80" | |
| | | (120 in. W. B.) | |
| | | 3780 7-p Sedan \$ 2,125 | |
| | | | |
| | | "80" | |
| | | (120 in. W. B.) | |
| | | 3335 4-p Roadster \$ 1,645 | |
| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
| | | | |
| | | "80" | |
| | | (130 in. W. B.) | |
| | | 3335 4-p Roadster \$ 1,645 | |
| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
| | | | |
| | | "80" | |
| | | (130 in. W. B.) | |
| | | 3335 4-p Roadster \$ 1,645 | |
| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
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| | | "80" | |
| | | (130 in. W. B.) | |
| | | 3335 4-p Roadster \$ 1,645 | |
| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
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| | | "80" | |
| | | (130 in. W. B.) | |
| | | 3335 4-p Roadster \$ 1,645 | |
| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
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| | | (130 in. W. B.) | |
| | | 3335 4-p Roadster \$ 1,645 | |
| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
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| | | (130 in. W. B.) | |
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| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
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| | | (130 in. W. B.) | |
| | | 3335 4-p Roadster \$ 1,645 | |
| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
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| | | "80" | |
| | | (130 in. W. B.) | |
| | | 3335 4-p Roadster \$ 1,645 | |
| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
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| | | "80" | |
| | | (130 in. W. B.) | |
| | | 3335 4-p Roadster \$ 1,645 | |
| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
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| | | "80" | |
| | | (130 in. W. B.) | |
| | | 3335 4-p Roadster \$ 1,645 | |
| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
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| | | "80" | |
| | | (130 in. W. B.) | |
| | | 3335 4-p Roadster \$ 1,645 | |
| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
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| | | "80" | |
| | | (130 in. W. B.) | |
| | | 3335 4-p Roadster \$ 1,645 | |
| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
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| | | "80" | |
| | | (130 in. W. B.) | |
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| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
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| | | "80" | |
| | | (130 in. W. B.) | |
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| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
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| | | "80" | |
| | | (130 in. W. B.) | |
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| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
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| | | (130 in. W. B.) | |
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| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
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| | | 3625 5-p Sedan 1,925 | |
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| | | (130 in. W. B.) | |
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| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
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| | | "80" | |
| | | (130 in. W. B.) | |
| | | 3335 4-p Roadster \$ 1,645 | |
| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
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| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
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| | | (130 in. W. B.) | |
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| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
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| | | (130 in. W. B.) | |
| | | 3335 4-p Roadster \$ 1,645 | |
| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
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| | | "80" | |
| | | (130 in. W. B.) | |
| | | 3335 4-p Roadster \$ 1,645 | |
| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
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| | | "80" | |
| | | (130 in. W. B.) | |
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| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
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| | | "80" | |
| | | (130 in. W. B.) | |
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| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
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| | | "80" | |
| | | (130 in. W. B.) | |
| | | 3335 4-p Roadster \$ 1,645 | |
| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
| | | | |
| | | "80" | |
| | | (130 in. W. B.) | |
| | | 3335 4-p Roadster \$ 1,645 | |
| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
| | | | |
| | | "80" | |
| | | (130 in. W. B.) | |
| | | 3335 4-p Roadster \$ 1,645 | |
| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
| | | | |
| | | "80" | |
| | | (130 in. W. B.) | |
| | | 3335 4-p Roadster \$ 1,645 | |
| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
| | | | |
| | | "80" | |
| | | (130 in. W. B.) | |
| | | 3335 4-p Roadster \$ 1,645 | |
| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
| | | | |
| | | "80" | |
| | | (130 in. W. B.) | |
| | | 3335 4-p Roadster \$ 1,645 | |
| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
| | | | |
| | | "80" | |
| | | (130 in. W. B.) | |
| | | 3335 4-p Roadster \$ 1,645 | |
| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Touring 1,645 | |
| | | 3500 4-p Coupe 1,850 | |
| | | 3625 5-p Sedan 1,925 | |
| | | | |
| | | "80" | |
| | | (130 in. W. B.) | |
| | | 3335 4-p Roadster \$ 1,645 | |
| | | 3245 5-p Touring 1,450 | |
| | | 3395 4-p Sp. Tour | |

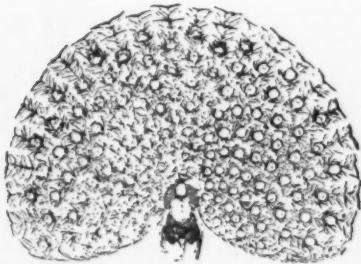
Prices and Weights of Current Passenger Car Models

| SHIP
WT. PASS. BODY STYLE. PRICE |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| LOCOMOBILE—Continued | | | |
| "48" | "30E" | "8-69" | "G-8" |
| 5030 4-p Sportif \$7,460 | 2335 5-p Touring \$ 875 | 3850 2-4-p Roadster \$2,995 | 4235 2-p Roadster \$3,850 |
| 5330 7-p Touring 7,460 | 2490 5-p Sp. Touring 980 | 4125 5-p Sedan 3,495 | 4325 4-p Touring 3,850 |
| 5640 7-p Touring Lim. 9,500 | 2317 4-p DeL. Roadster 975 | 4200 7-p Sedan 3,595 | 4457 4-p Cabriolet Rdtr 4,250 |
| 5600 5-p Victoria Sed. 10,050 | 2450 2-p Coupe 925 | 4275 5-p Ber. Limousine 3,795 | 4565 5-p Sedan 4,350 |
| 5644 6-p Brougham 10,040 | 2570 5-p Coach 950 | | 4555 7-p Sedan 4,450 |
| 5868 7-p Enc. Dr. Lim. 10,050 | 2538 2-p DeLuxe Coupe 990 | | 4700 7-p Limousine 4,650 |
| 5624 7-p Cabriolet 10,300 | 4-p Sport Coupe 1,035 | 5-p Coupe 2,795 | 4850 5-p Sedan Lim. 4,550 |
| McFARLAN "TV" | | | |
| 4000 2-p Roadster \$5,400 | 2720 5-p DeLuxe Coach 1,050 | 5-p Sedan 2,995 | |
| 4600 4-p Sp. Touring 5,600 | 2625 5-p Sedan 1,025 | | |
| 4900 4-p Coupe 6,720 | 2780 5-p Landau 1,125 | | |
| 5200 4-p Tour. Sedan 6,720 | 2780 5-p Landau 1,190 | | |
| 5200 7-p Tour. Sedan 6,810 | | | |
| 6-p Sedan 6,720 | | | |
| 7-p Sedan 6,810 | | | |
| 7-p Spec. Sedan 6,810 | | | |
| 7-p Enc. Sedan 7,110 | | | |
| 5200 7-p Sub. Sedan 7,110 | | | |
| 5200 7-p Town Car 9,000 | | | |
| "Straight 8" | | | |
| 3400 2-p Roadster \$2,650 | | | |
| 3400 5-p Touring 2,650 | | | |
| 3450 7-p Touring 2,750 | | | |
| 3400 4-p Roadster 3,050 | | | |
| 3650 5-p Sedan 3,180 | | | |
| 3650 5-p Sub. Sedan 3,380 | | | |
| 3700 7-p Sedan 3,280 | | | |
| 3700 7-p Sub. Sedan 3,480 | | | |
| 3650 4-p Coupe 3,180 | | | |
| 3650 5-p Broug. Coach 3,180 | | | |
| 3750 5-p Town Car 4,600 | | | |
| MARMON | | | |
| "Little Marmon" | | | |
| 3019 2-p Speedster \$1,895 | | | |
| 2977 4-p Speedster 1,965 | | | |
| 3054 2-p Coupe Rdster 1,995 | | | |
| 3053 2-p Coupe 1,895 | | | |
| 3039 4-p Sedan 2d. 1,795 | | | |
| 3092 4-p Sedan 4d. 1,895 | | | |
| 3119 5-p Cus. Sedan 2W 2,595 | | | |
| 3172 5-p Cus. Sedan 3W 2,595 | | | |
| 3116 4-p Cus. Victoria 2,595 | | | |
| 3040 5-p Cus. Town Cab 3,125 | | | |
| "E-75" | | | |
| 4251 2-p Speedster \$3,485 | | | |
| 4256 4-p Speedster 3,485 | | | |
| 4017 5-p Phaeton 3,485 | | | |
| 4480 7-p Tour. Speedster 3,565 | | | |
| 4374 2-p Coupe R'dster 3,565 | | | |
| 4452 5-p Town Coupe 3,195 | | | |
| 4373 2-p Coupe 3,485 | | | |
| 4346 4-p Victoria 3,485 | | | |
| 4525 5-p Brougham 3,565 | | | |
| 4498 5-p Sedan 3,565 | | | |
| 4620 7-p Sedan 3,640 | | | |
| 4515 5-p Custom Sedan 3,960 | | | |
| 4678 7-p Custom Sedan 4,075 | | | |
| 4718 7-p Custom Lim. 4,175 | | | |
| MOON | | | |
| "6-60" | | | |
| 2295 3-5-p Roadster \$ 995 | | | |
| 2330 3-5-p DeL. Roadster 1,095 | | | |
| 2340 5-p Phaeton 995 | | | |
| 2420 5-p Coach 1,045 | | | |
| 2520 5-p Std. Brough. 1,145 | | | |
| 2575 5-p Cab. Roadster 1,195 | | | |
| 2520 5-p Royal Bro'm 1,195 | | | |
| 2605 5-p 4d. Sedan 1,245 | | | |
| 2605 5-p Royal Sedan 1,295 | | | |
| Series "A" | | | |
| 2600 5-p Roadster \$1,395 | | | |
| 2560 5-p Touring 1,195 | | | |
| 2720 5-p Cab. Roadster 1,595 | | | |
| 2710 5-p DeL. Bro'm 1,395 | | | |
| 2860 5-p DeL. Sedan 4d. 1,545 | | | |
| NASH | | | |
| "Light Six" | | | |
| 2275 5-p Touring \$ 865 | | | |
| 2310 2-p Coupe 925 | | | |
| 2440 5-p Sedan 925 | | | |
| 2475 5-p Sedan 995 | | | |
| 5-p De Luxe Sedan 1,035 | | | |
| "Special Six" | | | |
| 2900 2-p Roadster \$1,115 | | | |
| 2980 5-p Touring 1,135 | | | |
| 2980 4-p Roadster 1,225 | | | |
| 3030 2-p Business Coupe 1,165 | | | |
| 3150 5-p Sedan 2d. 1,215 | | | |
| 3170 5-p Sedan 1,315 | | | |
| 3250 5-p Spec. Sedan 1,485 | | | |
| 5-p Caval. Sed. 1,695 | | | |
| "Advanced Six" | | | |
| (121 in. W. B.) | | | |
| 3390 4-p Roadster \$1,475 | | | |
| 3400 5-p Touring 1,340 | | | |
| 3550 5-p Sedan 2d. 1,425 | | | |
| 3650 5-p Sedan 1,525 | | | |
| 3650 5-p Spec. Sedan 1,695 | | | |
| (127 in. W. B.) | | | |
| 3430 7-p Touring \$1,490 | | | |
| 3640 4-p Victoria 1,790 | | | |
| 3750 5-p Coupe 1,990 | | | |
| 5-p Amb. Sed. 2,090 | | | |
| 3830 7-p Sedan 2,090 | | | |
| OAKLAND | | | |
| "6" | | | |
| 2500 5-p Touring \$1,025 | | | |
| 2590 4-p Sp. Roadster 1,175 | | | |
| 2620 5-p Sp. Phaeton 1,095 | | | |
| 2745 5-p 2d. Sedan 1,095 | | | |
| 2705 3-p Landau Coupe 1,125 | | | |
| 2855 5-p 4d. Sedan 1,195 | | | |
| 2885 5-p Landau Sedan 1,295 | | | |
| OLDSMOBILE | | | |
| "30E" | | | |
| 2335 5-p Touring \$ 875 | | | |
| 2490 5-p Sp. Touring 980 | | | |
| 2317 4-p DeL. Roadster 975 | | | |
| 2450 2-p Coupe 925 | | | |
| 2570 5-p Coach 950 | | | |
| 2538 2-p DeLuxe Coupe 990 | | | |
| 4-p Sport Coupe 1,035 | | | |
| 2720 5-p DeLuxe Coach 1,050 | | | |
| 2625 5-p Sedan 1,025 | | | |
| 2780 5-p Landau 1,125 | | | |
| 2780 5-p Landau 1,190 | | | |
| OVERLAND | | | |
| "(4) Whippet" | | | |
| 1985 5-p Touring \$ 625 | | | |
| 2225 2-4-p Roadster 825 | | | |
| 2305 2-p Coupe 795 | | | |
| 2405 5-p Coach 795 | | | |
| 2440 6-p Sedan 875 | | | |
| 2490 5-p Landau 925 | | | |
| PACKARD | | | |
| "6" | | | |
| 3545 4-p Roadster \$2,350 | | | |
| 3590 5-p Phaeton 2,250 | | | |
| 3925 5-p Sedan 2,250 | | | |
| (133 in. W. B.) | | | |
| 3790 7-p Touring \$2,785 | | | |
| 3925 4-p Coupe 2,685 | | | |
| 4070 7-p Sedan 2,785 | | | |
| 4015 5-p Club Sedan 2,725 | | | |
| 4130 7-p Sedan Lim. 2,885 | | | |
| (136 in. W. B.) | | | |
| 4110 4-p Runabout \$3,850 | | | |
| 4130 5-p Phaeton 3,750 | | | |
| 4475 4-p Coupe 4,750 | | | |
| 4430 5-p Sedan 4,750 | | | |
| (143 in. W. B.) | | | |
| 4250 7-p Touring \$3,950 | | | |
| 4550 5-p Club Sedan 4,390 | | | |
| 4660 7-p Sedan 5,000 | | | |
| 4700 7-p Sedan Lim. 5,100 | | | |
| PAIGE | | | |
| "6-45" | | | |
| 2660 5-p Touring \$1,150 | | | |
| 2660 5-p Brougham 1,095 | | | |
| 2760 5-p Coupe 1,095 | | | |
| 2760 5-p Sedan 1,195 | | | |
| (125 in. W. B.) | | | |
| 3215 4-p Roadster \$1,495 | | | |
| 3215 5-p Brougham 1,395 | | | |
| 3115 5-p Landau Bro'm 1,395 | | | |
| 3280 5-p Sedan 1,495 | | | |
| (115 in. W. B.) | | | |
| 3475 2-4-p Roadster \$1,495 | | | |
| 3475 5-p Cab. Rdster. 2,655 | | | |
| 3490 4-p Coupe 2,655 | | | |
| 3570 7-p Limousine 2,145 | | | |
| (6-65") | | | |
| 3625 5-p Coupe \$2,295 | | | |
| 3625 5-p Sedan 2,395 | | | |
| 3680 5-p Sedan 2,395 | | | |
| (6-75") | | | |
| 3420 7-p Touring \$1,655 | | | |
| 3540 4-p Cab. Roadster 1,995 | | | |
| 3550 5-p Sedan 1,695 | | | |
| 3550 4-p Coupe 1,995 | | | |
| 3765 7-p Sedan 1,995 | | | |
| 3805 7-p Limousine 2,145 | | | |
| (6-85") | | | |
| 3570 7-p Touring \$2,295 | | | |
| 3700 5-p Sedan 2,355 | | | |
| 3910 7-p Sedan 2,655 | | | |
| 3690 4-p Cab. Rdster. 2,655 | | | |
| 3700 4-p Coupe 2,655 | | | |
| 3950 7-p Limousine 2,795 | | | |
| PEERLESS | | | |
| "6-60" | | | |
| 3625 5-p Coupe \$2,295 | | | |
| 3625 5-p Sedan 2,395 | | | |
| "6-72" | | | |
| 3625 5-p Sedan 2,395 | | | |
| (126 1/2 in. W. B.) | | | |
| 3475 2-4-p Sp. Roadster \$2,195 | | | |
| 3400 7-p Phaeton 1,995 | | | |
| 3800 7-p Sedan 2,595 | | | |
| 3575 5-p DeLuxe Sedan 2,795 | | | |
| 3650 7-p DeLuxe Sedan 2,995 | | | |
| (133 1/2 in. W. B.) | | | |
| 3475 2-4-p Sp. Roadster \$2,195 | | | |
| 3400 7-p Phaeton 1,995 | | | |
| 3800 7-p Sedan 2,595 | | | |
| 3575 5-p DeLuxe Sedan 2,795 | | | |
| 3650 7-p DeLuxe Sedan 2,995 | | | |
| "6-80" | | | |
| 2950 5-p Phaeton \$1,395 | | | |
| 3025 2-4-p Roadster 1,495 | | | |
| 3260 4-p Coupe 1,565 | | | |
| 3120 2-4-p Coupe 1,565 | | | |
| 3100 5-p Sedan 2d. 1,395 | | | |
| 3290 5-p Std. Sedan 1,595 | | | |
| 3140 5-p Sport Sedan 1,795 | | | |
| "6-90" | | | |
| 3140 5-p DeLuxe Sedan 1,795 | | | |
| "8-69" | | | |
| 2335 5-p Touring \$ 875 | | | |
| 2490 5-p Sp. Touring 980 | | | |
| 2317 4-p DeL. Roadster 975 | | | |
| 2450 2-p Coupe 925 | | | |
| 2570 5-p Coach 950 | | | |
| 2538 2-p DeLuxe Coupe 990 | | | |
| 4-p Sport Coupe 1,035 | | | |
| 2720 5-p DeL. Deluxe Coach 1,050 | | | |
| 2625 5-p Sedan 1,025 | | | |
| 2780 5-p Landau 1,125 | | | |
| 2780 5-p Landau 1,190 | | | |
| STAR | | | |
| "4" | | | |
| 1850 2-p Conv't R'dster \$ 550 | | | |
| 1905 5-p Touring 550 | | | |
| 1965 2-p Coupe 650 | | | |
| 2120 5-p Coach 675 | | | |
| 2190 5-p Sedan 4d. 765 | | | |
| "6" | | | |
| 2075 5-p Touring \$ 725 | | | |
| 2160 2-4-p Sp. Roadster 885 | | | |
| 2245 5-p Coupe 795 | | | |
| 2355 5-p Sedan 845 | | | |
| 2365 5-p Landau Sedan 925 | | | |
| 2150 2-4-p Sp. Coupe 975 | | | |
| "8-88" | | | |
| 2100 2-p Coupe 725 | | | |
| 2245 5-p Coupe 795 | | | |
| 2355 5-p Sedan 845 | | | |
| 2365 5-p Landau Sedan 925 | | | |
| 2150 2-4-p Sp. Coupe 975 | | | |
| STEARNS-KNIGHT | | | |
| "F 6-85" | | | |
| 3140 5-p DeLuxe Sedan 1,795 | | | |
| "G-8" | | | |
| 4235 2-p Roadster \$3,250 | | | |
| 4235 4-p Touring 3,250 | | | |
| 4457 4-p Coupe 4,250 | | | |
| 4565 5-p Sedan 4,350 | | | |
| 4555 7-p Sedan 4,450 | | | |
| 4700 7-p Limousine 4,650 | | | |
| 4850 5-p Sedan Lim. 4,550 | | | |
| STUDEBAKER | | | |
| Standard Six | | | |
| 2965 3-p Du. Roadster \$1,160 | | | |
| 3030 3-p Sport Roadster 1,195 | | | |
| 3095 5-p Du. Phaeton 1,180 | | | |
| 3140 3-p Country Club 1,295 | | | |
| 3210 5-p Du. Coach 1,230 | | | |
| 3115 5-p Du. Lim. 1,330 | | | |
| 3235 5-p Custom Sedan 1,335 | | | |
| 3180 4-p Cus. Victoria 1,325 | | | |
| Special Six | | | |
| 3448 2-4-p Sp. Roadster \$1,630 | | | |
| 3495 5-p Du. Phaeton 1,480 | | | |
| 3470 5-p Coach 1,480 | | | |
| 3620 5-p Brougham 1,830 | | | |
| (120 in. W. B.) | | | |
| 3445 2-p Runabout \$2,895 | | | |
| 3445 5-p Phaeton 3,095 | | | |
| 3445 3-p Country Club 3,195 | | | |
| 3445 5-p Du. Lim. 3,295 | | | |
| 3445 5-p Club Coupe 3,195 | | | |
| 3445 5-p Sport Sedan 3,195 | | | |
| 3445 5-p Enclosed Lim. 3,195 | | | |
| 3445 5-p French Lim. 3,195 | | | |
| (127 in. W. B.) | | | |
| 3480 2-4-p Sp. Roadster \$1,630 | | | |
| 3495 5-p Du. Phaeton 1,480 | | | |
| 3470 5-p Coach 1,480 | | | |
| 3620 5-p Brougham 1,830 | | | |
| (145 in. W. B.) | | | |
| 4058 2-4-p Speedster \$3,150 | | | |
| 4175 4-p Speedster 3,160 | | | |
| 4233 5-p Brougham 3,195 | | | |
| 4343 5-p Sedan 3,195 | | | </ |

Mechanical Specifications of Current Passenger Car Models

This list comprises cars distributed on a national basis

Zen-Zenith
(Continued on page 12)

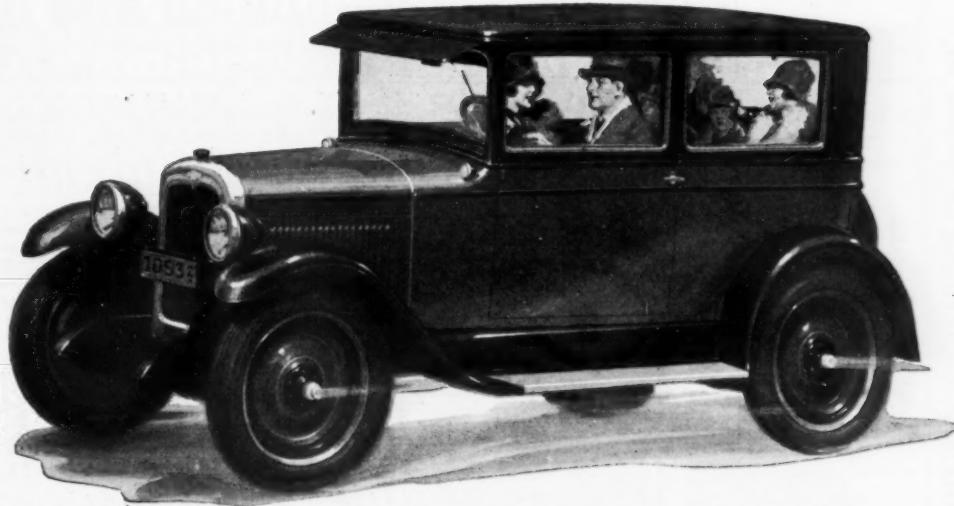


The Most
Beautiful Chevrolet
in Chevrolet History

THE COACH

\$595

f. o. b. Flint, Michigan



More for Their Money than they ever thought possible

The Most Beautiful Chevrolet is scoring the greatest success in Chevrolet history! And why? Because no other car of equally low price ever supplied so completely all the attractions and advantages of a high-priced automobile!

... Fisher Bodies whose style, distinction and luxury rival the costliest custom-built creations!

... marks of distinction, such as full-crown one-piece fenders, bullet-type lamps, and narrow windshield pillars!

... a host of improvements typified by AC oil filter, AC air cleaner, coincidental steering and ignition lock, and improved transmission!

All in addition to Chevrolet's already renowned quality features and powerful, smooth performance—and all offered at amazing price reductions!

Here truly is more for the money than was ever thought possible—more than even Chevrolet, with its progressive policies and magnificent factories, could possibly offer, were it not for the economies of tremendous volume production.

The amazing popularity of the new Chevrolet is bringing unparalleled profits to Chevrolet dealers everywhere—definitely establishing the Chevrolet franchise as one of the most valuable in the entire automotive industry.

for Economical Transportation



<i>The Touring</i>	<i>\$ 525</i>
<i>The</i>	<i>\$ 625</i>
<i>Coupe</i>	<i>695</i>
<i>The 4-Door</i>	<i>715</i>
<i>Sedan</i>	<i>745</i>
<i>The Sport</i>	<i>395</i>
<i>Cabriolet</i> ..	<i>495</i>
<i>The</i>	<i>Chassis Only</i>
<i>Landau</i> ...	<i>Chassis Only</i>
<i>1/2 Ton Truck</i>	<i>Chassis Only</i>
<i>1 Ton Truck</i>	<i>Chassis Only</i>

All Prices F.o.b Flint Michigan
Balloon tires now standard
on all models.

In addition to these low prices
Chevrolet's delivered prices
include the lowest handling
and financing charges now
available.

CHEVROLET MOTOR COMPANY, DETROIT, MICHIGAN
Division of General Motors Corporation

QUALITY AT LOW COST

Mechanical Specifications of Current Passenger Car Models—Continued (From page 40)

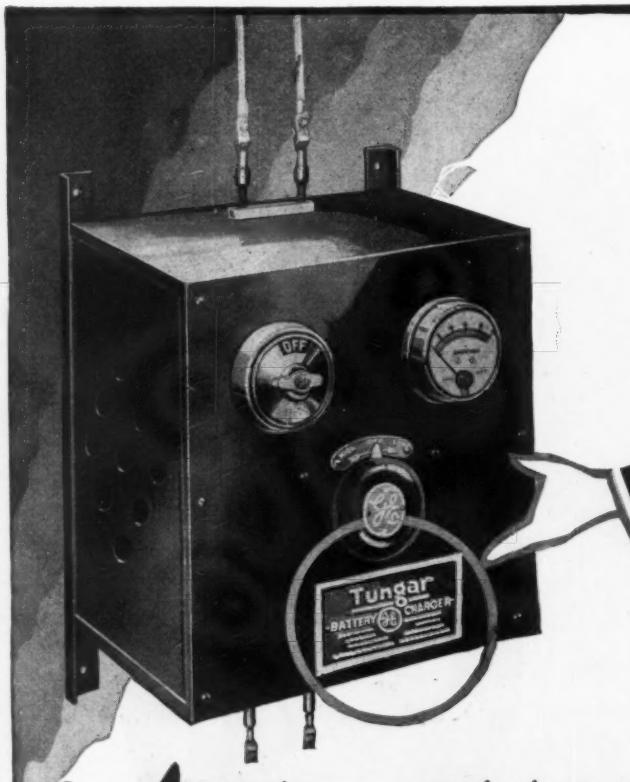
MAKE AND MODEL	Model and Wheel Base, inches	Tire Size— Front and Rear	Decimals— Front and Rear	Model and Number of Cyls., Bores and Stroke,	Net. Min. Horse- power and Rated H.P.	Stationary Motor Arrangement	Central Vibrat- ion Dampener	Oil Damping System	Oil Center	Thermostatic Control System	Radiator, 7 Structures?	Centerline Mount	Gear Ratios	Foot-type and Hand-lever-type Handbrake	Steering Gear— Type and Make	Rear Set— Type and Make	Centerline Sys- tem	Gear Ratios	Type and Make	Rear Axle	Brakes	ABBREVIATIONS— NAMES OF MFRS. OF STOCK PARTS				
Locomobile.....8-66	124	30x5.77	8-21 ^{1/4}	25.3	199	I	Ch. C.I.	5	Y P.P. F	Pu..	N	N	N	N	N	N	N	Var. I-F.	M. Ross.	Var. I-F.	I-R.	4.70 I-F.	I-R.	Se	War. S-55 ^{1/2}	Pr-Zo.
Locomobile.....8-50	130	32x6.75	8-3 ^{1/2} 44 ^{1/2}	33.8	299	L	Ch. A.I..	5	Y P.P. F	Pu..	N	N	N	N	N	N	N	Var. I-F.	M. Ross.	Var. I-F.	I-R.	4.81 I-F.	I-R.	Se	War. S-58	Pr-Zo.
Locomobile.....48	142	32x6.75	8-4 ^{1/2} 55 ^{1/2}	48.6	525	T	He. C.I.	7	Y P.P. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	M. Ross.	Var. I-F.	I-R.	3.50 B-F.	I-R.	M	War. S-50	Pr-Zo.
Locomobile....."90"	135	32x6.75	8-3 ^{1/2} 55 ^{1/2}	36.0	372	L	Ch. C.I.	7	Y P.P. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	M. Ross.	Var. I-F.	I-R.	4.5 ^{1/2}	I-R.	Se	War. S-60	Pr-Zo.
Marnon.....Little	116	29x5.25	8-2 ^{1/2} 44	24.2	190	I	Ch. C.I.	5	Y P.K. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	M. Ross.	Var. I-F.	I-R.	4.56	I-R.	M	War. S-56	None.
McFarlan.....E-75	136	32x6.75	8-3 ^{1/2} 44 ^{1/2}	33.8	299	L	Ch. A.I..	5	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	5.11 I-F.	I-R.	H	War. S-56	Bowen Car.
McFarlan.....St. 8	131	33x6.20	8-4 ^{1/2} 44 ^{1/2}	40.6	526	T	He. C.I.	4	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	5.33 I-F.	I-R.	H	War. S-56	Carter
McFarlan.....TV	141 ^{1/2}	33x6.75	8-3 ^{1/2} 55 ^{1/2}	30.5	325	23	196	1	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	5.40 I-F.	I-R.	H	War. S-56	Cleveland
Locomobile.....Series A	113	30x5.75	8-2 ^{1/2} 44 ^{1/2}	261	294	75	Con.	261	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Continental
Moen.....650	110	29x4.75	8-2 ^{1/2} 44 ^{1/2}	19.8	185	L	Ch. C.I.	4	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Campbell
Nash.....Light Six	108	31x6.75	8-2 ^{1/2} 44 ^{1/2}	21.6	170	L	He. C.I.	4	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Nash.....Advanced	121-127	33x6.75	8-2 ^{1/2} 44 ^{1/2}	28.4	279	L	He. C.I.	4	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Detroit
Nash....."C"	Special	112 ^{1/2}	31x5.25	231	63 ^{1/2} 44 ^{1/2}	I	Spec.	231	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Ditweller
Oakland.....30 E	110 ^{1/2}	30x5.25	8-2 ^{1/2} 44 ^{1/2}	30.5	325	23	196	1	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Ditweller
Oldsmobile.....Overland.....(6)	109 ^{1/2}	29x5.75	8-2 ^{1/2} 44 ^{1/2}	109 ^{1/2}	294	75	Con.	109 ^{1/2}	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Overland.....(6)	126-133	30x5.25	8-2 ^{1/2} 44 ^{1/2}	126-133	294	75	Con.	126-133	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Packard.....6	130-143	33x6.75	8-3 ^{1/2} 45	29.4	385	L	Ch. C.I.	9	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Packard.....6-45	109	30x5.25	8-2 ^{1/2} 44 ^{1/2}	125	329	60	Con.	125	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Pague.....6-75	125	31x6.75	8-2 ^{1/2} 44 ^{1/2}	27.3	329	60	Con.	27.3	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Pague.....6-95	115	31x6.75	8-2 ^{1/2} 44 ^{1/2}	31.5	329	60	Con.	31.5	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Pierce Arrow.....80	120	32x6.75	8-2 ^{1/2} 44 ^{1/2}	80	329	60	Con.	80	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Pontiac.....S-110	110	32x6.75	8-2 ^{1/2} 44 ^{1/2}	110	329	60	Con.	110	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Pearless.....6-72	126-134	33x6.00	8-2 ^{1/2} 44 ^{1/2}	28.4	329	60	Con.	28.4	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Pearless.....8-59	133 ^{1/2}	33x6.20	8-3 ^{1/2} 45	33.8	332	L	He. C.I.	3	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Pearless.....6-90	120	33x6.75	8-2 ^{1/2} 44 ^{1/2}	90	329	60	Con.	90	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Pearles.....36	138	33x6.75	8-2 ^{1/2} 44 ^{1/2}	36	329	60	Con.	36	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Pierce Arrow.....80	125	32x6.75	8-2 ^{1/2} 44 ^{1/2}	80	329	60	Con.	80	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Pearles.....8-80	125	32x6.75	8-2 ^{1/2} 44 ^{1/2}	125	329	60	Con.	125	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Pearles.....8-88	130	32x6.75	8-2 ^{1/2} 44 ^{1/2}	130	329	60	Con.	130	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Pearles.....8-96	121	32x6.75	8-2 ^{1/2} 44 ^{1/2}	121	329	60	Con.	121	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Rickenbacker.....6-70	115	31x6.75	8-2 ^{1/2} 44 ^{1/2}	70	329	60	Con.	70	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Rickenbacker.....8-80	136	33x6.00	8-3 ^{1/2} 45	33.8	329	60	Con.	33.8	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Roamer.....8-80	125	32x6.75	8-2 ^{1/2} 44 ^{1/2}	80	329	60	Con.	80	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Rolls Royce.....Silver Ghost	143 ^{1/2}	33x6.75	8-2 ^{1/2} 44 ^{1/2}	40-50	526	T	He. C.I.	4	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Star.....103	118	32x6.75	8-2 ^{1/2} 44 ^{1/2}	30x1.75	329	60	Con.	30x1.75	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Stearns Knight.....F-685	107	32x6.75	8-2 ^{1/2} 44 ^{1/2}	107	329	60	Con.	107	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Stearns Knight.....G-8	137 ^{1/2}	32x6.75	8-2 ^{1/2} 44 ^{1/2}	90	329	60	Con.	90	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Studebaker.....Sed. 6	113	31x6.75	8-2 ^{1/2} 44 ^{1/2}	31x6.75	329	60	Con.	31x6.75	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Studebaker.....Sed. 6	120	32x6.00	8-2 ^{1/2} 44 ^{1/2}	32x6.00	329	60	Con.	32x6.00	Y P.C. F	Pu..	Y	N	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Studebaker.....Big 6	120	32x6.75	8-2 ^{1/2} 44 ^{1/2}	127	32x6.75	329	60	Con.	127	Y P.C. F	Pu..	Y	N	N	N	N	N	Var. I-F.	I-R.	Var. I-F.	I-R.	4.80 B-F.	I-R.	H	War. S-56	Dodge
Studebaker.....Big 6	127	32x6.75	8-2 ^{1/2} 44 ^{1/2}	131	32x6.75																					



It is easy to understand why the Vulco Tire is quickly forging to the front in popularity. More than 10 million motorists have for years used Vulco products—they have learned that the name Vulco always stands for quality and service. That's why the Vulco Tire is so rapidly becoming a leader.

VULCO TIRES

"Built for Miles"



ten successful years

For ten years Tungar has been bringing profit to repair shops, garages, and battery service stations.

Tungar is on the job day and night in large city stations where many Tungars work, or in the village garage where there may be only one. Low in first cost—and in operating cost—Tungar brings steady profit year after year.

Tungar was conceived by General Electric ten years ago in its Research Laboratories and each year has been more successful.

If you have idle wall space, make it yield a profit. Tungar has done this successfully for ten years.



Tungar—a registered trademark—is found only on the genuine. Look for it on the name plate.

GENERAL ELECTRIC

The Outlook for Knight-engined Cars

A thorough survey of the trend in automotive development clearly indicates a rapidly expanding market for Knight-engined cars.

Benefiting from a series of radical but practical improvements in automobile design in the past few years, the public is now prepared for the next important development—the popular adoption of the Knight sleeve-valve principle.

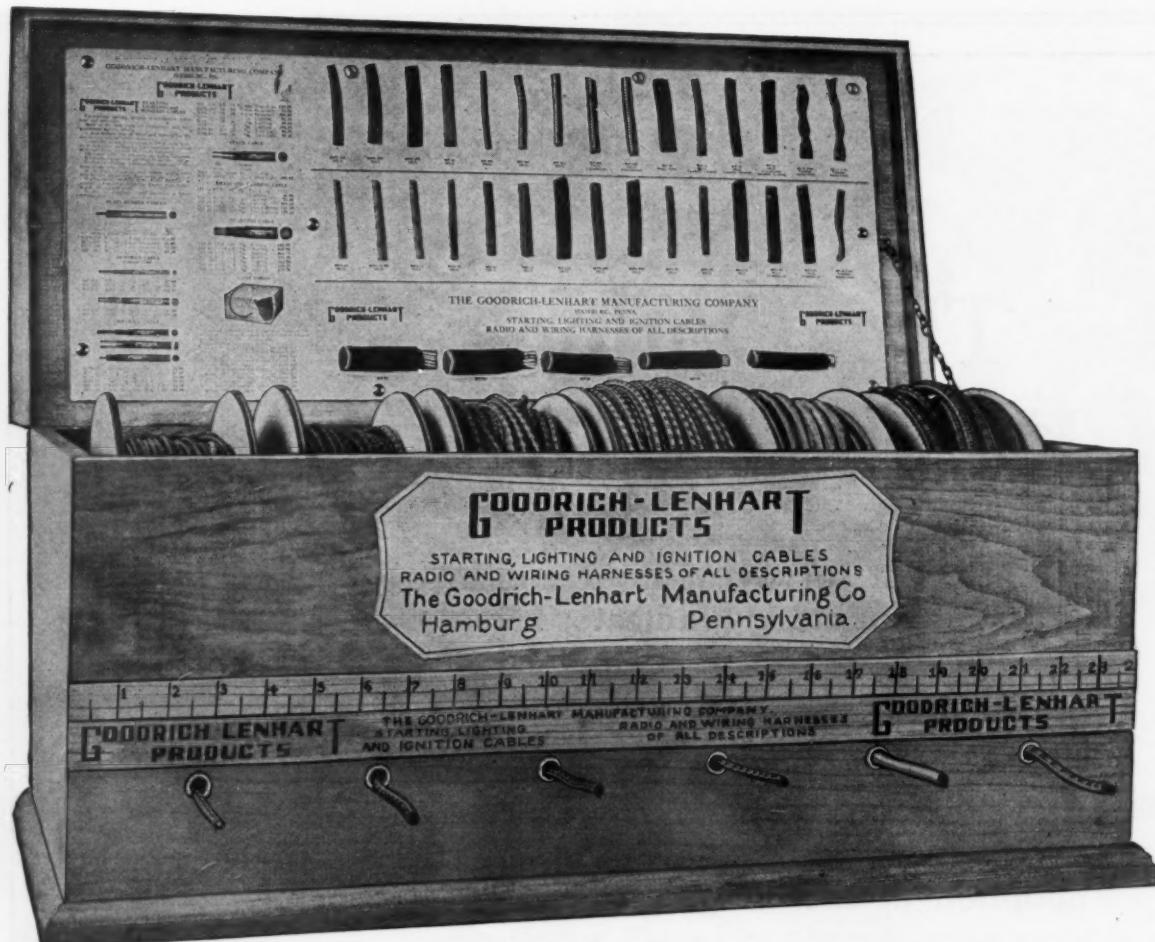
This superior type of motor is endorsed by both European and American Automotive Engineers—and by every Knight-engined car owner.

The Falcon-Knight is the only Knight-engined car in the lower price range.

FALCON MOTORS CORPORATION, • DETROIT

Falcon-Knight





This Kit— STOPS LOSSES *in Handling Cable!*



Goodrich Lenhart Cable comes to you in neat dustproof packages that conveniently refill spools without rewinding.

The biggest cable sales-help yet—the Goodrich-Lenhart Cable kit. Helps you stock, display and serve cable. No mislaid spools, no loose ends—everything where you want it.

Holds the six most used numbers of starting, ignition and lighting cable and puts them right in front of your customers, or for easy accessibility to your repairmen. Makes it easy to identify each type of cable. The measuring scale is part of the kit. Rolls for replacement to fit spools can be obtained thru your jobber.

Also displays samples of each and every item in the G-L Cable Line.

Kits are supplied through all Goodrich Lenhart jobbers. Write for price and name of nearest jobber!

Goodrich-Lenhart Mfg. Co., Hamburg, Pa.

GOODRICH-LENHART
CABLE KITS

NORTH EAST SPEEDOMETERS



*And now—for FORDS
The Speedometer That Lasts*

Full Measure of
North East Dependability

Accurate at every speed

Compensated for all
Temperature Changes

Readable Night or Day

Special Mounting Provided
for Dash Light

- 100,000-mile
Season Odometer

- 100-mile
Trip Odometer
Conveniently Reset

**\$15.00 Complete
with Application Parts**

IT'S HERE! Look your Ford customer in the eye and tell him confidently, "Now you can get a speedometer that lasts. Your speedometer troubles are over. Here is a full-sized, fine looking instrument that you can depend upon—one that you will be proud to put on your car—one that improves the appearance of the dash and provides for a dash light if you have none."

Here is an instrument that embodies the results of years of speedometer production for exacting Car Manufacturers. It is marketed in the clean-cut North East way. Its price assures quality to the purchaser and worth while profit to the dealer. Get in at the start of this business-building proposition. Call on the nearest North East Branch or Distributor for details.

Full-sized and
Good Appearance

Applicable to All
Models from 1925 on

Patented Drive
from Rear Wheel

Simple to Install

No Swivel
Drive Gears Fully Protected

High Grade
Flexible Shaft

Built throughout to
North East Standards

*Backed the World Over
by Authorized Service Stations*

NORTH EAST Products are distributed and serviced by
NORTH EAST SERVICE INC.
Rochester - Atlanta - Chicago - Detroit - Kansas City - New York
San Francisco - London - Paris - Toronto
Authorized Service Stations throughout the World

NORTH EAST Products are made by the
NORTH EAST ELECTRIC CO.
Manufacturers of Automotive Equipment
Rochester, N. Y.

NORTH EAST



STARTING - LIGHTING - IGNITION - HORNS - SPEEDOMETERS - FRACTIONAL H.P. MOTORS

A Message for Manufacturers Who Value *the POSSIBILITIES of the* **BIG SMALL TOWN MARKET**

Up and down the Main Streets of the country—the hundreds of thousands of Main Streets whereon are found the hundreds and thousands of automotive sales rooms and garages—where millions of motor cars have been sold and are being serviced—there you will find the great pulsating heart of the automotive market.

The problems of these dealers and garage owners are in many ways different from those of the "dealer Napoleons" of Broadway, Michigan Avenue, or Van Ness Avenue.

But they are real problems—of real merchants—men whose efforts have proved of tremendous consequence in underwriting the success of the automotive industry in America.

To these men of trade—your present and potential dealers—the second annual **BIG SMALL TOWN MARKET** number of **Automobile Trade Journal** will be dedicated.

Entirely from the view point, and for the advantage of the thousands who compose the big small town market the issue—to be published May 1—will consider:

- Meeting the Used Car Question in Small Towns.
- Ideas that Pay Big Dividends to the Small Town Dealer.
- Making Replacement Parts Pay Dividends.
- Proper Charges for Service and Repairs—and How to Get the Money.
- Courtesy and Cleanliness as Sources of Dividends.
- Increasing the Sales of Service and Supplies.
- New Flat Rate Price List Described.
- Service Shop Maintenance Data Chart.

It will be an issue that every small town dealer in the country—and the big town dealers too—will accord a real welcome. Editorially, it will be outstanding. As an advertising vehicle it will afford unusual value. There will be no advance in advertising rates.

**AUTOMOBILE
TRADE JOURNAL**

Philadelphia

a Chilton Class Journal publication

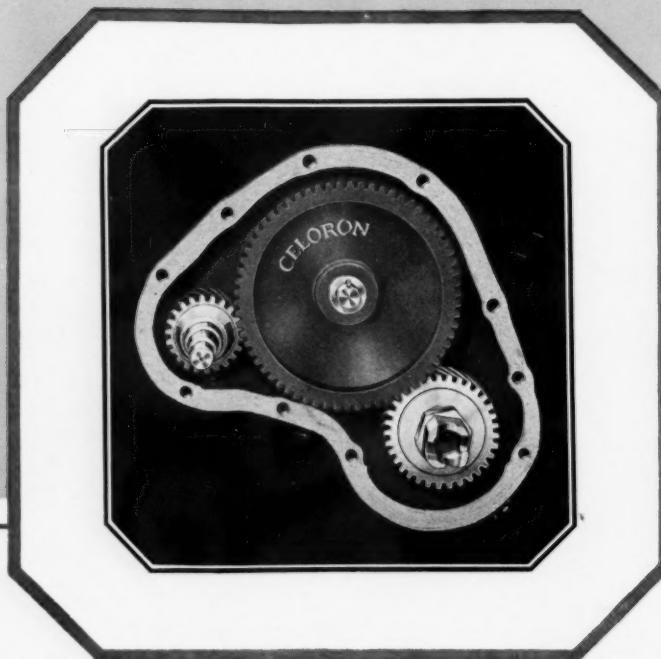
S I L E N T



CELORON

THE leopard moves on cushioned feet; in the jungle, silence is the price of existence. For the motor, too, silence is life. It is the outward sign of perfect co-ordination, the smooth, effortless efficiency that minimizes wear. So, Celoron Silent Timing Gears are contributing something more than the luxury of silence. By eliminating the grinding contact of metal against metal, interposing their own tough durability, they preserve the perfect timing that prolongs the motor's life.

CELORON
TIMING GEARS



Celoron Timing Gears are not cut from sheet stock. They are genuine *Die Formed*—scientifically moulded to indefinitely withstand the stresses that they will encounter in the timing mechanism.

Every Repair Shop in America is assured "Over Night or Better" Delivery of Celoron Silent Timing Gears

Here is another valuable feature that helps to make Celoron Silent Timing Gears so profitable for the Repair Shop and Service Station Owner. *Unlimited Distribution*.

Think of it. There's probably not a single repair man in the United States who cannot get just the Celoron Gear he wants over night or sooner, from the ample stocks carried by N.A.P.A. jobbers and distributors everywhere.

You know what this remarkable distributor service means to you. No need to invest in large stock of replacement gears. Simply order them when you need them. No expensive shipments from distant points to cut into your deserved

profits. No delays to hinder your work and antagonize your customers.

This is but one of the many tangible profit-bearing advantages which Celoron Silent Timing Gears offer the repair man. Their long enduring silence, extreme dependability and unquestioned accuracy—the fact that they are so widely known and generally preferred by both manufacturers and car owners—all contribute to the added prestige of the shop handling them and insure the customer good-will, which builds business.

The Celoron Silent Timing Gear List, showing the specifications for all makes of cars, will be sent on request. Write for your copy today.

Celoron Timing Gears. Non-metallic and resilient

1. Eliminate metal-to-metal contact.
2. Silent at all speeds, and stay silent permanently.
3. Save every part of the timing mechanism from the effects of vibration and shock.
4. Accurately cut, they keep timing accurate.
5. Grease-proof, oil-proof, water-proof — will not warp or swell.

THE CELORON COMPANY

Division of Diamond State Fibre Company

BRIDGEPORT, PA.

In Canada: 235 Carlaw Ave., Toronto
Laminated Products, Moulding Powders and Varnishes

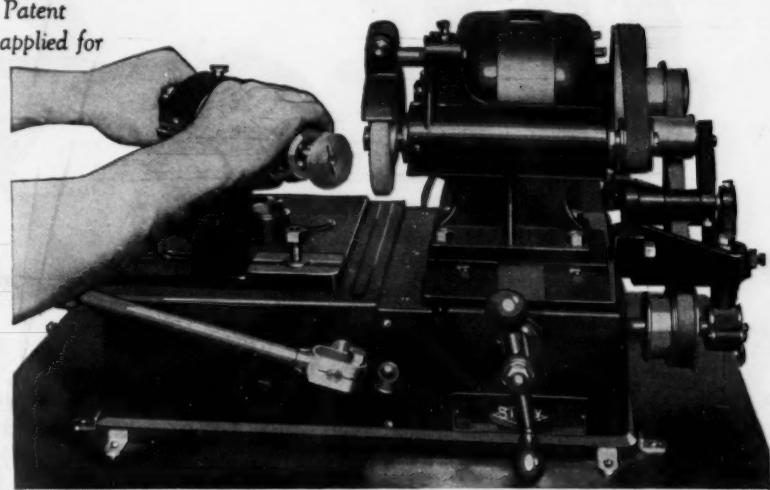
VALVE FACE GRINDING MACHINE

with the NEW
Sioux Roller
Chucking System

No. 650

Patent
applied for

Net price complete \$160



With its **NEW roller chucking system**—the Sioux Valve Face Grinding Machine is now more firmly established than ever as the most advanced and perfected machine of its kind—new standards of simplicity, accuracy and speed on valve work. When the chuck is tightened, the rollers, with their long firm gripping surface, automatically push the valve stem back against the aligner. This assures a perfect alignment and accurate grinding of valve face in proper relation to the valve stem guide hole in the motor. **Guaranteed accurate within .001.** The floating rollers change position on every valve chucked—assuring long life. Capacity 5-16 to 41-64 inch inclusive. With Sioux equipment you can make valve servicing a source of big income. Its big time savings give you an extra margin on every job. You can also grind valves for other shops at a good profit. Investigate the Sioux before you buy.

ALBERTSON & CO. Sioux City, Iowa, U. S. A.

SIOUX
Trade Mark Reg. U. S. Patent Office

Your Jobber
Sells It.

Important Biflex

DEALERS everywhere, who are interested in selling better bumpers and making bigger profits, are "taking on" Biflex. Throughout the length and breadth of the land the new Biflex policy is winning dealers.

This new proposition, as you probably learned from former advertisements, has been made possible through radical manufacturing changes in the Biflex and Halladay plants. Like every other large institution Biflex has reached a point in its growth where the greatest manufacturing efficiency has been achieved. New ways of forging, polishing and plating have cut production costs. The economies effected have been passed on to the dealers in terms of bigger profits.

Dealers, in a few brief weeks, have seen how the new Biflex policy is making real money for them. They have seen how Biflex national advertising has aided their salability. They have seen how car

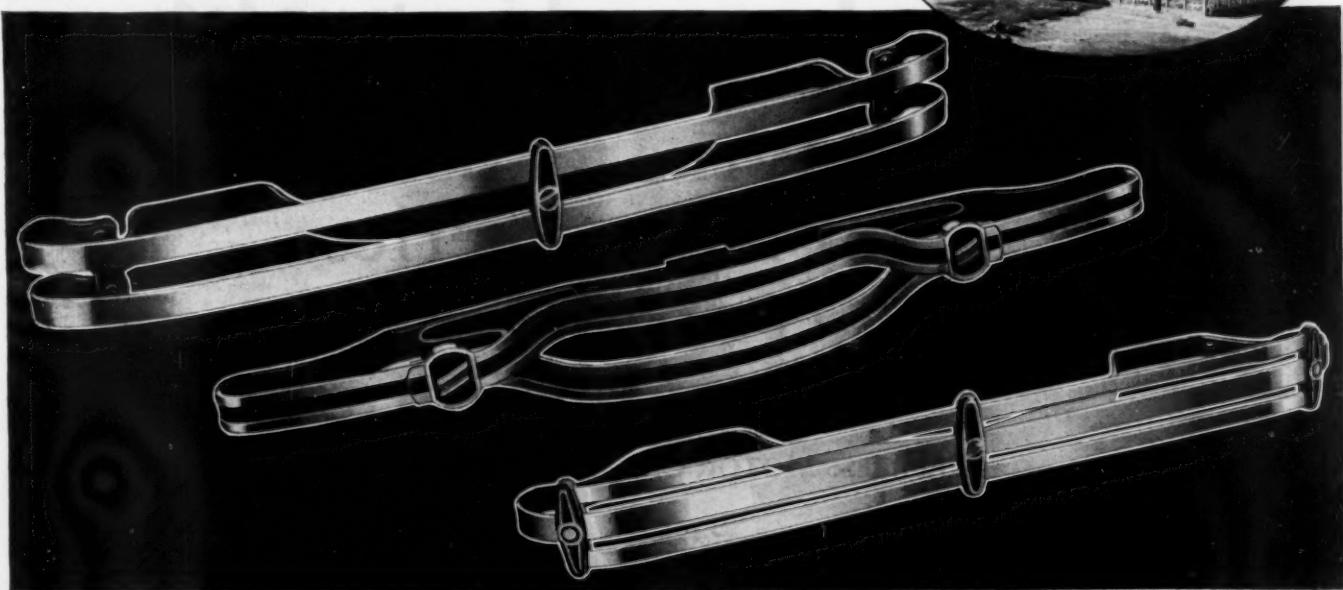
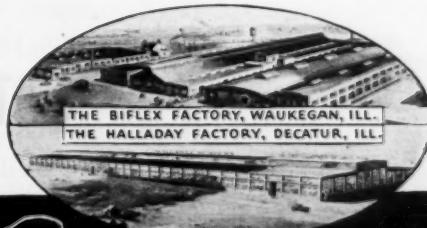
owners, demanding greater protection, have shown a *marked preference for Biflex*. They have been quick to see, too, how their name and the name of their car has been identified with Biflex quality and Biflex prestige. Furthermore, they have realized that to sell Biflex is to know nothing of bumper worries or bumper troubles—thanks to Biflex brackets. The improved superb models of greater protection and beauty enthuse everyone.

Biflex always has been, and still is, the first choice for America's leading motor car engineers. Now every dealer can afford Biflex for the car he sells. Surely if the public recognizes Biflex quality above all others and more money is to be made selling Biflex, what reason is there for stocking others? If you are not acquainted with the new Biflex prices, write or wire for complete information today.

THE BIFLEX CORPORATION
WAUKEGAN · ILLINOIS



change in Prices *is winning dealers everywhere*



Biflex

Cushion
Bumpers



features that make
PEERLESS
Six-60, Six-80
and Six-90
 outstanding in
 value and in profit

Write for details
 of the Peerless
 franchise in
 open territories

PEERLESS MOTOR CAR CORPORATION • Cleveland, Ohio

— at Prices

Peerless Six-80

Phaeton	•	•	\$1395
Roadster	•	•	1495
Two-Door Sedan	•	•	1395
Roadster-Coupe	•	•	1565
Four-Door Sedan	•	•	1595

Peerless Six-90

Roadster	•	•	\$1695
Roadster-Coupe	•	•	1725
Five-Pass. Sedan	•	•	1895
Close-Coupled Sedan	•	•	1895
Landaulet-Sedan	•	•	1995

(All prices f. o. b. factory)



1

7-bearing crankshaft

Since 1912 this has been a feature of Peerless Six construction. It eliminates "whip"—reduces vibration—adds to the smoothness that makes a car easy to sell.

2

Ross Cam and Lever steering gear

—gives Peerless Sixes the wonderful ease of steering that appeals so strongly to those who appreciate fine cars.

3

Lockheed Hydraulic 4-wheel brakes

—give uniform pressure on all four brakes. Mean safety—freedom from skids. Reduce tire wear.

4

Timken Bearings Throughout

Used to give maximum dependability to front and rear wheels, differential and bevel pinion mounting and in fan mounting.

5

Semi-elliptic Springs

Wide, long and flat under load—with long angled shackles. This type of construction means the utmost in easy riding.

6

Exquisite Appointments

Hardware, vanity cases, smoking sets, dome lights, shades, all appeal strongly to buyers who want high quality cars.

7

Beauty of Design

Peerless Six bodies are long, lithe, low. Yet there is ample head room—length enough in the smallest body for plenty of leg room.

8

Advanced Engineering

Go over any Peerless Six with care and you'll find it embodies all that is latest and best in automotive engineering.

- and

in addition

9 Nelson Bohnalite Pistons

10 Super Oil Strainer

11 Air Cleaner

12 Visible Gasoline Strainer

13 Rubber Motor Mounting

14 Single plate clutch

15 Splined shaft transmission with built-in speedometer drive

16 Exceptionally strong frame

17 Marshall type cushion springs

18 High grade Mohair upholstery

19 Plate glass in all windows

20 Full vision ventilating windshield

21 Permanent visor on closed cars

22 Long-lasting lacquer finish

23 Spirited performance

24 Marked economy

25 Dependability

26 Speed

27 And of great importance from the dealer's standpoint—Peerless has always had an honored name.

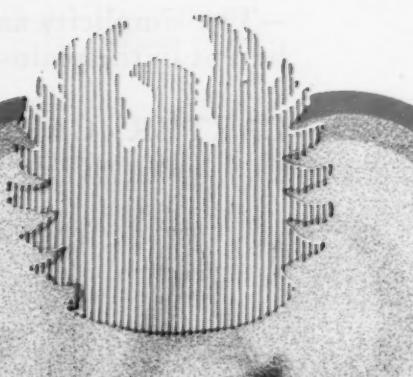
Peerless Six-72

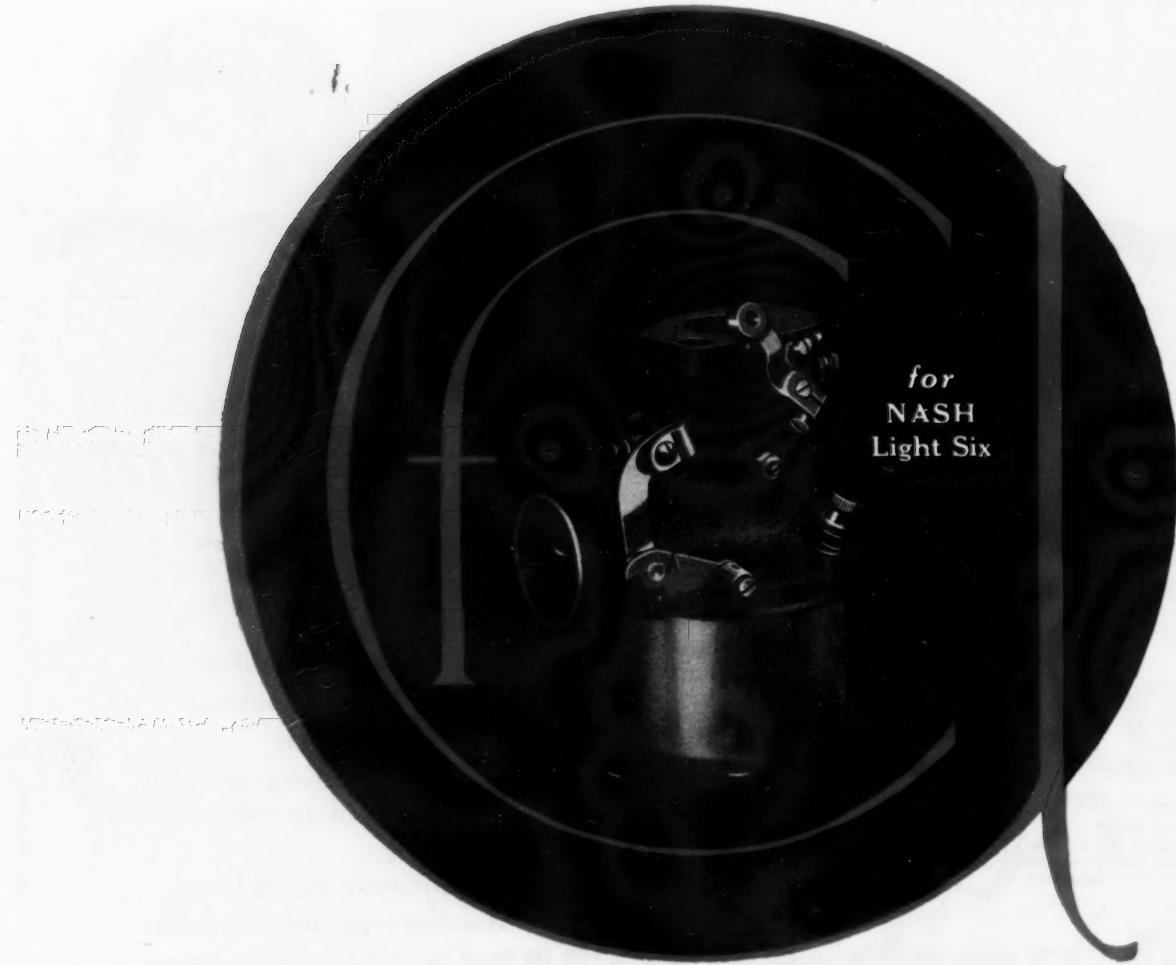
Five-Pass. Phaeton	\$1895
Roadster	2195
Five-Pass. Coupe	2295
Five-Pass. Sedan	2395
Seven-Pass. Sedan	2595
Limousine	2695
Five-Pass. DeLuxe Sedan	2795
Seven-Pass. DeLuxe Sedan	2995

Peerless Eight-69

Standard 5-Pass. Coupe	\$2795
Standard 5-Pass. Sedan	2995
Standard 7-Pass. Sedan	3095
Custom Roadster	2995
Custom 5-Pass. Sedan	3495
Custom 7-Pass. Sedan	3595
Berline Limousine	3795

(All prices f. o. b. factory)





Better than 1 in 5 Carter-Equipped

When one make of carburetor is specified for better than one of every five new cars produced today, it must be for very concrete reasons.

—It is recognized that Carter design is kept in the van of engine progress. The combination of Carter experience and American Car and Foundry resources makes this possible.

—The simplicity and certainty inherent in the plain-tube principle,

pioneered by Carter, assures uniform excellence in Carter production of more than 1,000,000 carburetors yearly! The care governing Carter specifications, extreme manufacturing precision, and relentless inspection are added safeguards.

—Finally, by direct, personal, willing help in the sales field, Carter shows how the superiority of this carburetor is best converted into car orders and owner satisfaction.

CARTER CARBURETOR CORPORATION, SAINT LOUIS

CARBURETER

Why You Will Want to Be an AC Dealer

In selling AC Products, the dealer establishes a contact which ties his business to a most powerful organization and makes a lasting connection, insuring enormous business possibilities now and in the future.

AC equipment, positive and increasing from year to year, is building a tremendous replacement business which will carry on and grow as long as the industry lasts.

No competitive lines can offer the volume and consequent profit that AC does and none of them can show such a guaranty for the future.

Practically every make of car now uses one or more, or all AC Products as factory equipment—among these makers being such firms as Buick, Cadillac, Chandler, Chevrolet, Chrysler, Flint-Star, Hudson-Essex, Nash, Oakland-Pontiac, Oldsmobile, Paige-Jewett and Willys-Overland.

There is no question about the quality of AC Spark Plugs and other AC Products.

There is no question as to the sales possibilities.

Practically every motorist wants AC Products, because through their extensive use as original equipment, owners know AC quality and are satisfied users.

That's why it is good policy for dealers to establish their business on a line that gives them not only a profit, but a guaranty for the future.

AC Spark Plug Company, FLINT, Michigan

AC-SPHINX
Birmingham
ENGLAND

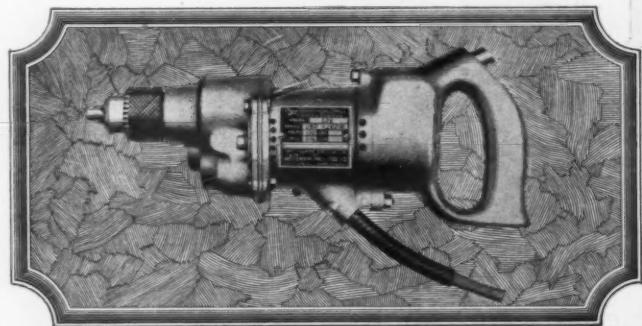
*Makers of AC Spark Plugs—AC Speedometers—AC Air
Cleaners—AC Oil Filters—AC Gasoline Strainers*

AC-TITAN
Levallois-Perret
FRANCE

Over 200 of the world's most successful manufacturers use one or more, or all of these AC Products

AC **AC** **AC** **AC**
SPARK PLUGS SPEEDOMETERS AIR CLEANERS OIL FILTERS

Thor ELECTRIC DRILLS



All That You Want In An Electric Drill —and MORE

A THOR Drill possesses all those qualities which you must have in an electric drill. It has power—speed—ability to withstand hard rugged use—AND DEPENDABILITY. No one knows better than you how important dependability is in a drill. It may be a rush job—or the shop is crowded with work, when without warning the drill you are using breaks down.

The THOR Is Built For Hard Work

You'll never appreciate a THOR Drill more than after an exceptionally hard job. The way it eats up the work, quickly and efficiently, will make a hit with you. It is built the way you have always hoped an electric drill would be built. And it's safe—shocks are impossible because a 3 wire safety cable is standard equipment. Convince yourself—try a THOR on our free trial offer without cost or obligation.

Write for a copy
of our catalog.

INDEPENDENT PNEUMATIC TOOL CO.
PNEUMATIC TOOLS

GENERAL OFFICES
600 W. Jackson Blvd.
CHICAGO

ELECTRIC TOOLS

FACTORY AURORA, ILL.
Eastern Office 1463 Broadway, New York.



BRANCHES THE WORLD OVER
London Office 40 Broadway, Westminster, London

Special Features Help Sell Bigler BETTER BUILT Automobile Luggage



PATENTED TOOL COMPARTMENT



HEAVY NICKELED BRASS CORNERS



SPECIAL RACKS FOR REAR INSTALLATION

BIGLER MFG. COMPANY
CHIPPEWA FALLS High Street WISCONSIN

The tool compartment—a patented, convenient and extremely simple feature, makes sales with profits unequalled in other automobile luggage.

The heavy nickelized brass corners, of exclusive design, are both beautiful and enduring—sales points that pay in profits.

The various designs for special installation—fender types, runningboard types, rear end models and camping trunks—complete the line to the satisfaction of every prospect.

Bigler Trunks and equipment are beautifully finished in bright black art leather, also genuine Duco colors to match. *Easy to clean.*

Bigler luggage sells. Let us give you complete details.

Bigler Built IS Better Built.

1927 Leaders

SNELL Super Heater

Hottest of all automobile heaters. Heats quickly, odorless, ventilates. One model for all cars.

DUPLEX—Second Spare Tire Carrier

The aristocrat of the road. Beautifies the car, holds the second spare securely and locks it on.

RIMPLEX—TRIPLEX

Second Spare Tire Carriers for the lighter car. Fits any size demountable rim.

Second Spare Carriers for Every Car
Second spare tire carrier equipment for every make and model car regardless of rim or wheel equipment.

Write for descriptive literature

TRIPP-SECORD & CO.
DETROIT — MICHIGAN

"The Right Bearing

for Every Car"



Thrust Bearing

Exceptional Service

B. C. A. Thrust Bearings give exceptional service for steering and kingpin use. They are built to take the steering shocks without appreciable wear.

Because of their record of trouble-free performance, B. C. A. Bearings have been selected by America's outstanding motorcar manufacturers.

Detroit, Michigan, Office
1012 Ford Bldg.

THE BEARINGS COMPANY of AMERICA
LANCASTER, PA.

NOW IN PREPARATION!

The Annual
Sales and Service Reference Number of

MOTOR AGE

Will be published
May 5, 1927

THIS big special issue of MOTOR AGE will contain an immense volume of merchandising and maintenance information of value to car dealers, accessory dealers, repair shop proprietors, garage men, and all other automotive merchants.

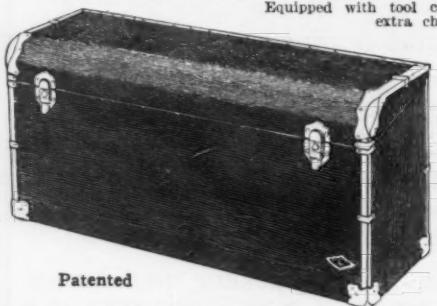
Many new and valuable features are planned for the coming issue of the Sales and Service Reference Number.

MAKE A NOTE OF THE DATE—MAY 5th—BE SURE YOU GET YOUR COPY OF THIS COMPREHENSIVE REFERENCE GUIDE

MOTOR AGE
5 SO. WABASH AVE., CHICAGO, ILL.

LORENZ
AUTOMOBILE
TRUNKS
N-O-W R-E-A-D-Y
 IN ALL THE LATEST DESIGNS
 FOR ALL NEW MODEL CARS

Equipped with tool compartment at no extra charge



Patented

LORENZ
 BIG CHIEF
 custom built,
 water and dust-
 proof, rust
 proof, nickel
 plated hard-
 ware, genuine
 Fabrikoid cov-
 ering.

BOOST YOUR ACCESSORY BUSINESS WITH
 LORENZ TUKAWAY and BIG CHIEF
 AMERICA'S FINEST AUTOMOBILE TRUNKS

Lorenz Trunks and Trunk Racks with or without Bumperets for all makes of cars.

LORENZ TRUNK WORKS, INC.

Automotive & Warehouse Division

MINNEAPOLIS, MINN.

211-213 First Ave. No.
 Chicago Warehouse Branch:
 Winkenweder & Taylor,
 1507 So. Michigan Ave.

St. Louis Warehouse Branch:
 Winkenweder & Taylor,
 2030 Pine St.

Lorenz Trunks and Trunk Equipment sold through JOBBERS ONLY.
 New Jobber sheets just off press.



"It Sure Pays"

That's what you want to know about the equipment that goes into your shop. And that's what we hear on all sides from users of

The Lange Edger

It makes new business of a kind never handled efficiently in your work-room, and it pays valuable, worth-while profits from the start. Ask for details.

HENRY G. LANGE MACH. WKS.
 150-166 N. May St., Chicago



**SAFEGUARDS
 AGAINST
 THIEVES**

**POWERSTEEL
 AUTOWLOCK**

**You Can Reach Easier with
 The New DOVER FLEXO COMBINATION
 MEASURE and FUNNEL**

Conveniently reaches any oil hole or tank on any make of car. Quick, clean and easy to use. Tube unscrews and packs inside of measure. Made in 3 capacities: 1, 2 and 4 quarts. Prices: \$2.00, \$2.25 and \$2.50.

Dover Stamping & Mfg. Co.
 385 Putman Ave., Cambridge, A, Mass.



SIMPLEX
Piston Rings

Simplex Piston Rings supersede all other methods of rebuilding cylinders and pistons.

10,000 MILES GUARANTEED

Against Oil Pumping, Piston Slap
 and Compression Loss — Backed up by
 Simplex Distributors in your Community

Send for details of this short cut scientific method of reconditioning ALL cylinders, no matter how worn, tapered, out of round or heat distorted.

THE SIMPLEX PISTON RING COMPANY
 of America, Incorporated
 1971 East 66th Street, Cleveland, Ohio

RED CAT DeLuxe
 Carriers

Put it on and LEAVE it on. Folds down when not in use. Handiest carrier made. Neat, rigid. Clamps on. Retails at \$1.75, \$2 and \$2.50. Handled by jobbers. We'll send you one for your car at half price!

G. A. Roth Mfg. Co., Hastings, Neb.

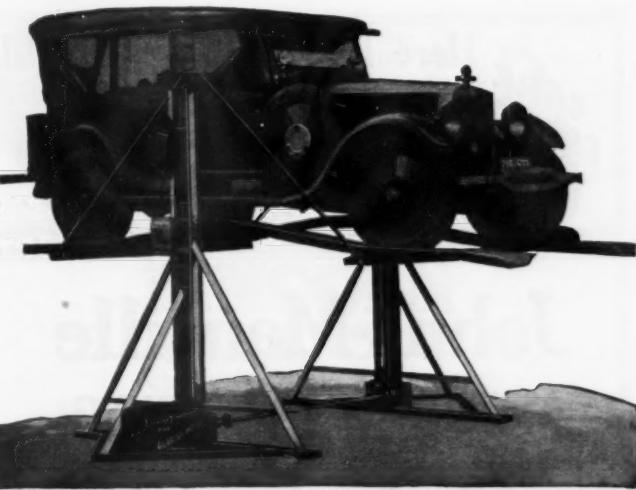


NEXT WEEK

—is the time to read next week's issue of MOTOR AGE, as you are reading this week's issue this week

MOTOR AGE
 5 So. Wabash Ave. Chicago, Ill.

B U R D
 TURNED — QUICK SEATING — OIL
 PISTON RINGS
 BURD HIGH COMPRESSION RING CO., ROCKFORD, ILL.



5 foot Lift in 2 minutes

The Gladish Hoist

This is the most efficient hoist ever manufactured. No installing expense. No pits to dig and concrete. No expensive runways to build. No center braces or supports to hinder the operator. Absolutely safe. A child can operate it.

Note: Let us give you complete information on this hoist. There is no obligation on your part.

The American Hoist Corp.
2420 East 14th St., Department 1
Chattanooga, Tenn.

There's always
something new just
at hand for the
regular reader of

MOTOR AGE

MotoTRUNK For All Makes of Cars



Die Stamped Steel. Dust and Waterproof.

Baked Enamel or Duco to match.

Racks or Fender Guard Rack assembly
for rigid installation.

Distributed Direct to Dealers.

The MoTor Trunk Co.

5952 Second Blvd. Detroit, Mich.

"The Pump Packing the Motor Builders Use"

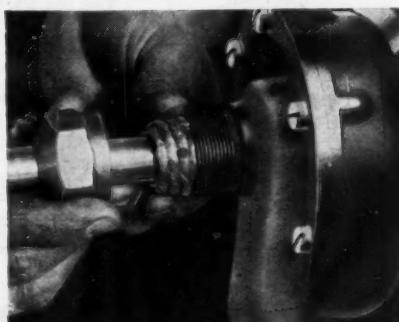
"John Crane" is standard factory equipment on over 40% of all autos, trucks, busses and tractors. This one replacement style repacks all pumps, compressing into a resilient one piece metallic packer.

"John Crane"

Prevents scored and leaky
shafts so common when
asbestos packing is used.
Saves non-freezing mixtures.
Is like fabric packing, but
has babbitt foil wrapping.
Just as easy to repack as
with any fabric.

Makes a
Rpacking
Job Worth
More Money

Order from your
jobber or direct.



Metallic Crane Packing Company

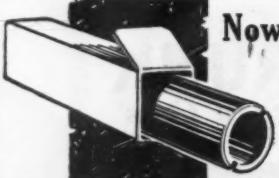


1805 Clyer Avenue, 109 Broad St.,
Chicago New York

Gentlemen: Send me C. O. D. _____
spools. Style 112 Garage size (enough
for 20 pump packing boxes), \$2.50 net.

Name _____

Address _____



Now—5 Different Oversizes
to every standard size and type of
Piston Pin—in stock, waiting for
your telegraphic order.

**THOMPSON
PISTON PINS**
Defiance Ohio



Here Is Something to Sell!
A piston ring, on the principle of a packing ring, that gives
remarkable results in service, is used in thousands by auto-
mobile factory branches for replacement—and pays a profit
worth while. WRITE FOR DETAILS.

THE CORK-SEALED PISTON RING CORP.
2332 Michigan Avenue, Chicago
Factory: Denver, Colo.
Canadian Distributors: Purser, Bell & Co., Ltd.
Toronto, Canada

**WIRE OR WRITE US FOR NEW OR USED
TIRES — PARTS — ACCESSORIES**
IF IT'S FOR AN AUTOMOBILE WE HAVE IT!
SEE OUR NEXT DISPLAY IN MOTOR AGE MARCH 31

STATE AUTO PARTS CORPORATION
2011-13-15 S. State St., Chicago, Ill.

Johns-Manville
ASBESTOS BRAKE LINING



The tire with the Gum Weld Cushion has
become the most favorably talked about
heavy-duty tire in America.
So it pays to be an INDIA dealer.

INDIA TIRE & RUBBER CO., AKRON, OHIO

Simplicity
REG. U. S. PAT. OFF.
REBORER AND GRINDER
A big money-maker in any automobile repair shop or garage. Ask for free
demonstration in your own shop.

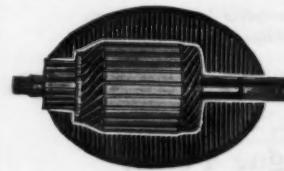
SIMPPLICITY MANUFACTURING COMPANY
Port Washington Wisconsin



BRUNNER
AIR COMPRESSORS
FREE

Write for the Book
"AIR PROFITS"
describing many new uses for compressed air. Shows how to make an air compressor earn greater profits.

BRUNNER MFG. CO.
UTICA NEW YORK



FREDERICKS
Rewinding Service
New Rewind Profits—See announcement every 4th week.
Write now for price list. The H. M. Fredericks Co., Lock Haven, Pa.



Arrow Head
Arrow Head's
most complete and flexible up-to-date line
of pistons and pins assures quick service on
the 4000 most-called-for fits and applica-
tions, including practically "all motors, all
years, all models."

Arrow Head Steel Products Company
Buffalo Minneapolis, Minn. Chicago

WEIDENHOFF
Shop Equipment
for Battery and Electrical Service
4358 Roosevelt Road, Chicago, Ill.



**Portable Electric
DRILLS**
GRINDERS—POLISHERS
Ask for Catalog 105

The United States Electric Tool Co. Cincinnati, Ohio, U. S. A.
Oldest Builders of Electric Drills and Grinders in the World



EATON SPRINGS
FOR REPLACEMENT
STANDARD EQUIPMENT ON AMERICA'S LEADING CARS
AND TRUCKS

THE EATON BUMPER & SPRING SERVICE CO., Cleveland, Ohio

LYCOMING Motors
Fine Fours, Sixes and Eights-in-Line
LYCOMING MANUFACTURING COMPANY, Williamsport, Pa.
Years Ahead in Automobile Motor Efficiency



LARKIN
THURD
THE LARKIN AUTOMOTIVE PARTS CO.
DAYTON, OHIO, U. S. A.

Let us
send our
profit-
boosting
plan.
It's Free.

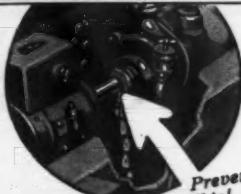
WEL-EVER
"OIL CONTROL" PISTON RINGS
The Motor Necessity That Has Made Good
Backed by Seven Years' Satisfactory Service
THE WEL-EVER PISTON RING CO., TOLEDO, OHIO
Sold most everywhere. If your dealer cannot supply you write us.



TASCO
Gas Gauge for
FORD
CHEVROLET
OVERLAND
and STAR

Sells Quick at \$1.25 Retail
Types "K" and "J" for 1926
Chevrolets and all
Stars Sell at \$1.50

THE AKRON-SELL CO.
Akron, Ohio



**Stops Pump Shaft Leaks
and Saves the Winter Solution**
Conneaut Plastic Metallic Packing molds in
the fingers to fit stuffing-boxes of any size
or shape. It is a repair for the worn shaft
and loose bushing. At your jobbers; if not
write us.
1 lb. can..... \$1.75 per pound
5 lb. can..... \$1.50 per pound
THE CONNEAUT PACKING CO.
Conneaut, Ohio

Prevent This!



**Every year more motorists
are saying . . .**
Goodbye, buggy wheels **BUDD**
WHEEL COMPANY
Philadelphia • Detroit

**LINCOLN
BALLOON
SHOCK ABSORBERS**
For All Cars—\$15 to \$40 Per Set of Four
LINCOLN PRODUCTS COMPANY, 2649 N. Kildare Ave., Chicago, Ill.

**WE MAKE
RADIATOR CORE MACHINERY**
Write for Catalog & Prices
RADIATOR ENGINEERING CO.
FACTORIES BLDG. TOLEDO, OHIO



Orrville Spring Governors
Make Smooth-Running Profits
Among the foremost popular sellers for easier riding.
Simple in operation and easy to install. Check the
rebound and control the springs against "galloping".
Ask for illustrated literature and discounts worth while.
ORRVILLE SPRING GOVERNOR CO., INC.
500 Grant Bldg. Canton, Ohio

Pat. Pending

**A
COMPLETE
STOCK
of AUTO PARTS and ACCESSORIES**
**5-Day Money Back Guarantee
Repossessed Used Cars
Write for Low Prices**
UNITED AUTO WRECKERS
2429 S. State St. Established 1916 Chicago

The Burgan Cotter Pin Extractor
Works Like Magic
It goes in anywhere, grips the cotter pin—snaps it out in a jiffy—holds it until released. You don't have to pull or twist. Just squeeze the handles. It's a great tool!
Write for prices and details
THE BURGAN CORPORATION
9 So. Clinton St. Chicago, Ill.

RADIATOR CAPS **ORNAMENTS**

Confidence in a product that has been produced with scrupulous attention to detail is born only of experience. Our clients know they receive only the finest in material and artistry.
FAITH MFG. CO., Inc. 2533-39 N. Ashland Ave., Chicago, Ill.



**PROTEX-A-MOTOR
GASOLINE PURIFIER**
Protects the Entire Gasoline System
It puts gas through a triple separation from its
impurities by straining—by filtration—and in ad-
dition by gravity.
Installed between gas tank and vacuum. Set on
self-cleaning 60° angle. Absolutely LEAK-PROOF!
Investigate!
PROTEX-A-MOTOR MANUFACTURING CO.
Pittston, Penna.

**U. S. REPLACEMENT
GENERATOR FIELD COILS
TO FIT MORE THAN 100
CAR APPLICATIONS.
LIBERAL DISCOUNT TO
DEALERS.**
LARGEST STOCK OF EXCHANGE ARMATURES IN THE WORLD.
Write For Free Copy Automobile Armature Data on Popular Late Models.
U. S. ARMATURE SERVICE 11-17 So. DesPlaines St., Chicago, Ill.

**WESCO
TIRE CHAINS**
"They Stand the Gaff"



**The K-S GASOLINE
Telegage** 
A gasoline gauge on the Dash. Note our half page
advertisement in the Saturday Evening Post, April 16.
Write for description and proposition to the trade.
KING-SEELEY CORPORATION
298 Second Street Ann Arbor, Michigan
Chicago Branch, 2450 Michigan Boulevard

HALLOHONE \$35.
Spring and Solid Pressure in one Hone
at your
Jobber's

Gilmer Makers of
the world's
best known
fan belts.
L. H. GILMER & CO., Tacony, Philadelphia

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Patent, Trade Mark and Copyright Law

SHOP EQUIPMENT

1-Foote Burt Cylinder Reborning Machine, with
Robins Meyers Motor $\frac{1}{2}$ H.P. 3 phase 220 volt
1750 RPM, including Reamers for Ford and
Fordson complete. This reborning machine can
rebone any size cylinders. Cost \$1600.00. Bar-
gain if sold soon. Guaranteed.

1-A4 Dearborn Burnishing and Running in
Machine for Ford and Fordson-Howell 2 speed
motor, 10 HP. at 900 RPM, 5 HP. at 456
RPM, 3 phase 220 volt, complete. Cost \$650.00.
Bargain if sold soon. Guaranteed. Write to

R. E. Matticks, Lincoln Ford Fordson Dealer,
102-108 East Main Street, Newark, Ohio.

SITUATION WANTED

SITUATION WANTED—All around auto
mechanic (Motor, Electrical Work, Battery,
Welding, Rebuilding, etc.) wants to change by
April 10. Able to handle help. 26 years repair
shop, factory and service experience, steady and
just the man for service work or to fix up your
crippled "Trade-ins" for a sale. c/o Box 88,
South Boundbrook, N. J.



MOON Motor Car Company has this to say also to their dealers and distributors concerning Key Graphite Paste—

"It is absolutely insoluble in gasoline and oil and has the peculiar property of expanding when heated. This makes it also ideal for exhaust pipe and cylinder head gaskets.

"We believe the judicious use of Key Graphite Paste will prevent the majority of service complaints caused by leaking joints at various places on the car."

Key Graphite Paste is a natural lubricant containing a considerable quantity of graphite. Any joints treated with this compound can be easily separated when necessary.

What Moon Motor Car Company has proved you can test out in your own shop. Send for free sample. Fill in coupon.

KEY BOILER EQUIPMENT CO.
East St. Louis, Ill.

Key Boiler Equipment Co. MA-31727
27th and McCasland Ave., E. St. Louis, Ill.

Send me free sample of Key Graphite Paste and descriptive leaflet on where and how to use it.

Name.....

Firm.....

Address.....

City..... State.....

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Delivering More Customer Satisfaction



Photo courtesy of The Stromberg Bros., Chicago.

"WHITNEY" SILENT HIGH MILEAGE CHAINS

on your shelves mean customer satisfaction in stock. Motorists depend upon you to "deliver the goods" when they "roll in" for a timing chain replacement that is satisfactory. Sell them a "WHITNEY" and its performance will in turn sell your shop's service to others.

With the famous "Whitney" Double Bearing Pin & Bushing Type is now offered the NEW "Whitney" Rolling Joint Type Silent Chain, which satisfies the most exacting demands for quiet timing in the modern refined motor and at the same time retains "Whitney" durability.

*Ask our distributor in any city, or
mail coupon for specification list.*

The Whitney Mfg. Co. Hartford, Conn.

I want that book on chain specifications

Name.....

Address.....

Service Station Fleet Owner Parts Jobber

STEWART-WARNER SHOCK ABSORBERS



Cash-In on this Advertising

The Saturday Evening Post of March 12th, carries this advertising on Stewart-Warner Shock Absorbers to the leading customers in your community. Tie up with this powerful selling force by prominently displaying Stewart-Warner products in your store.

Stewart-Warner
**SHOCK
ABSORBERS**
BUMPERS
HORNS
**DRIVING
LIGHTS**
SPEEDOMETERS
**VACUUM
TANKS**
**WINDSHIELD
CLEANERS**



These Big Selling Features Bring Greater Sales

Nationally advertised.
No need for frequent adjustment.

Self lubricated.
No friction on strap to cause breakage.

Outside case interlocked to prevent rattles.
May be adjusted to customer's liking by means of adjustment nut on outside—as easily done as setting your watch.

No Strap Friction— Hence No Strap Breakage

YOUR customers who equip their cars with Stewart-Warner Shock Absorbers do not come back complaining of broken straps due to continual friction and wear.

In the Stewart-Warner the strap rolls with the drum—it is not dragged over it. Therefore there is no frictional wear resulting in breakage. A big selling point that you can use to advantage.

Grease pockets in the friction discs provide necessary lubrication, eliminating squeaks and grunts. The outside case is interlocked so it cannot work loose and rattle.

Sell your prospects a Shock Absorber made by a reliable, well-known manufacturer, that will give satisfaction and no trouble. It will pay you.

STEWART-WARNER SPEEDOMETER COR'N
CHICAGO, U. S. A.

Stewart-Warner
The Trade-Mark of Safety

\$15

Per Pair

West of 100°
Meridian \$15.50

Tune in on the
Stewart-Warner
Air Theatre—
W. B. B. M., 226
Meters, every eve-
ning but Monday.

AS MANY MANLEY PRESSES AS ALL OTHERS COMBINED

This was the answer to a survey recently sent out to 1,690 bus and truck operators.

The Manley name was not mentioned in making the survey.

A concern in a different city wrote to these operators and asked them if they had a garage press and, if so, what make.

Of all the replies received one half said they were using Manley Presses.

NOTE--

Truck and Bus
work is the most
severe test of
a Press.

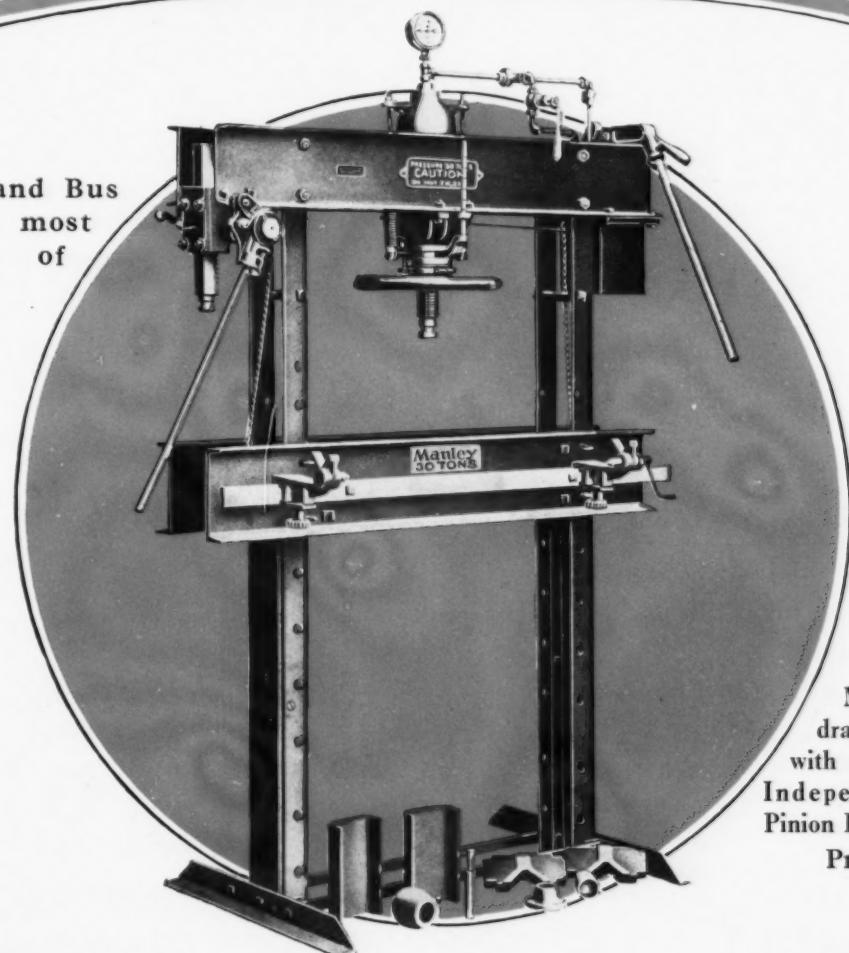


Illustration shows
Manley 30 Ton Hy-
draulic Press complete
with Test Centers and
Independent Rack and
Pinion Press.

Price..... \$175

CAT. No. 29-49

Cat. No. 9 — 30 Ton Hydraulic Press	- - (	Without Test Centers or Rack and Pinion Press	)	- - \$135
Cat. No. 8 — 40 Ton Hydraulic Press	- - (	Without Test Centers or Rack and Pinion Press	)	- - \$158
Cat. No. 6A — 60 Ton Hydraulic Press	- - (	Without Test Centers or Rack and Pinion Press	)	- - \$275
Cat. No. 3 — 20 Ton Screw Press	- - - (	(Without Straightening Attachment) or Rack and Pinion Press	)	- - \$ 71
Cat. No. 2 — 35 Ton Screw Press	- - - (	(Without Straightening Attachment) or Rack and Pinion Press	)	- - \$100

Sold through Jobbers only

MANLEY MFG. CO., - - - **YORK, PA.**

[*Buick*]

For people
who value exceptional
performance in their
motor car, Buick has the
powerful Buick Valve-in-Head
Engine, *vibrationless beyond belief*.
It is easier to sell Buicks.

{ Those who desire the Buick Franchise should have their names on file }

THE GREATEST BUICK
EVER BUILT



[*Buick*]